

# Preface

## Philosophical Flavors

- a. It may be possible to bridge Philosophy to Cancer Science and Cancer Medicine. The Philosophy of existence harbors a complicated territory and is based on the order of codes. According to the *Moulana* (known as Moulavi), to succeed an evolutionary and fundamentally movement within the style of planning, and for any translational crusade, the following items through an inspiration mode are required:
- Directional changes.
  - Sudden evolutionary insights.
  - Translatable broad and innovative thoughts and ideas.
  - Reason to process an evolutionary insight.
  - Not facing the words' barrier which restricts us to reach to influential/eternal thoughts.
  - Breaking through the solid walls and limitations.
  - Promoting a movement through a motivator to emerge the valuable and translatable achievements from layer to layer of our thoughts.
  - An evolutionary crusade towards fertilizing the ideas and philosophy of existence.

The nature of MOULANA's thoughts is reflective of:

- Sea of demands.
- Demand is an option to unmask the life origin.
- Continuous efforts.
- Tracing the hidden facts and realities.
- A remarkable gap between demands and obtainability.

b.

یک شعر منعکس کننده پیچیدگی هستی توسط شیخ محمود شبستری (692-718 هجری قمری):

جهان را سر به سر آینه ای دان

به هر یک ذره در صد مهر تابان

A poem by S.M. Shabastari, is reflective of the existence complexity (1313–1339: Fourteenth century, AD):

Each element of the existing globe is a mirror.

Each element is reflective of hundreds of shiny suns.

He has delineated the world of existence in which each tiny element is engaged with a key duty. Each element harbors the entire global positive spirit. In another word, they have the same philosophy of achievements in common, but with diverse spectrum.

## Scientific Insights of This Book

Initiation of neoplasms is originated from a single cell and development of multi-clones requires further interactive processes including metastasis (es) which is according to the programmed scenarios through the patients' life. These events are negatively supported by environmental hazards without an available systematic control system. Most importantly, predisposition is an essential requirement for initiation of different maladies including cancer. In fact, the major concern is that "how many predisposing genes have been discovered so far?" Or "will be unmasked in the future?" By considering a clear perspective, the most attractive vocabulary includes innovative/insightful/applicable, but it is peculiar to be acquainted with two important concerns; (1) what does inspire the cancer world? And (2) how would the inspiration be influential? Cancer has a traditional style and cancer management is formed by a quadrant shape including early detection, prediction, prevention, and prognosis. Such delineation would lead to design an appropriate and personalized diagnosis and therapy through a pedigree-based insight. All these are depending on the interactive information about clinical aspects, genetic, tumor cell biology, and therapeutic innovations. Besides, due to the tumor heterogeneity, the road map of the translatable paradigm is rather unclear. So, the complementary insights would, relatively, guarantee more applicable and practicable strategies.

## **This Book Presents 26 Chapters with the Following Contents in Brief**

*An introduction to pave the ways* entitles basic principles of medical ethics and deals with the top issue in science and clinic which focuses on the fundamental facts and its application in Medicine and cancer patients by emphasizing on the rules and traditional insights in different individuals. The manner of managements for cancer patients and considering their lifestyle are also highlighted.

Chapter 1 “Psycho—Oncology: The Relationship Between Psychology, Personality and Cancer” has considered other medical/noncancerous complications as well. Regarding the supportive managements, etiology, diagnostics and prevention were also highlighted.

Chapter 2 “Psychotherapy in Cancer” highlights the importance of social supportive systems in different populations. The role of involved factors in cancer therapy and the alternative medicine was also explored. Besides, the impact of influential therapy on the patients’ style of life was considered in this chapter.

Chapter 3 “New Developments in Psycho-Oncology” provides the relevant psychological factors in cancer patients by highlighting the declining side effects of routine therapies offered by oncologists and radiotherapists. In this chapter, it is tried to create a link between psychology and oncology in order to balance the interaction between body and psychological status of the cancer patients. To manage this matter, an organized program is required.

Chapter 4 “Psychiatric and Psychological Aspects of Breast Cancer: Diagnosis and Treatments” emphasized on Psychiatric and surgical diagnosis and treatments. The authors have focused on the spectrum of surgery, including cosmetic surgery of breast, and considering the required managements by psychologists. The major concern is revealed to be the lifestyle in breast cancer patients as the result of different therapeutic strategies. The authors have highlighted an interactive manner between the application of psychiatric and oncologic-based therapies.

Chapter 5 “Cancer Genetics at a Glance: The Comprehensive Insights” provides the basic approach and the involved machinery at the molecular and cellular levels. In this chapter, different aspects of genetic, miRNA, epigenetic etiology in different neoplasms such as brain and CNS, breast, alimentary system, oral, retinoblastoma, colorectal cancer, and hematopoietic disorders were also delivered. The major concern is the personalized cancer managements which require the complementary functional approach and informative follow-up studies.

Chapter 6 “The Relevance of Genetic Factors in Tumor Therapy and the Underlying Pharmacogenetic Principles” is reflective of the application of Pharmacogenetics in cancer therapy. The major items include, (1) the impact of genetic characteristics on the therapeutic managements, (2) targeted base, gene, and personalized therapy, (3) the benefit of anti-mutagenic components, and (4) experimental approach including *in vivo* and *in vitro* studies.

Chapter 7 “Genetic Counselling for Cancer Susceptibility” provides the significant fundamentals of genetic counseling, and the required molecular diagnostic test as an inherited susceptibility gene in the proband affected with cancer by considering the proband’s relatives. The required information on the pedigree analysis is also provided. The complementary and supportive clinical managements, by considering the ethics, are highlighted too. The author has also emphasized on the basic exceptional molecular status such as “rare high penetrance gene mutations and less common variants of low penetrance,” and the influential factors including style of life under environmental territories.

Chapter 8 “Cancer, Psychotherapy and the Airway” presented a dual insight which lead to a dramatic influence on the lifestyle of the patients affected with air way cancer. The author has provided an interaction between genetic field and psychotherapy by considering the psychological disorders such as “anxiety, depression and mood disturbance.”

Chapter 9 “Female Reproductive System and Cancer” provides an interactive manner between gynecological malignancies and the psychosocial scene. This chapter focuses on epidemiology, histopathology, diagnosis, and therapy of the reproductive system. Genetic counseling is considered as a directive tool for the prevention of hereditary susceptibility of reproductive system. Author has also highlighted the importance of HPV vaccination, “Psycho-neuroimmunological” and special attention to the psychological status of patients. The therapeutic approaches in different stages of pregnancy by considering the health of mother and her offspring were also emphasized.

Chapter 10 “Cancers of the Endocrine System” reflects a multidisciplinary insights including classification, diagnostics, genetic, screening, and genetic counseling in endocrine system.

Chapter 11 “A Comprehensive Look at Oromaxillofacial and Laryngopharyngeal Cancers” is reflective of an exploration on head and neck cancer (HNC), clinical aspects, and histopathological classifications of HN. In this chapter, diagnosis, clinical managements, therapeutic aspect, targeted chemotherapy, and a cross talk between practice and psychosocial field as the beneficial impact on the survival of patients were presented. This chapter is based on a systematic insight in which the patients’ education, the related managements including an early detection, based on the most informative diagnosis and most influential therapeutic strategies were highlighted.

Chapter 12 “Gastrointestinal Cancers” includes different aspects of classifications, diagnostics, clinical managements, and molecular genetic aspects in esophageal, gastric, and colorectal cancers.

Chapter 13 “Genetic and Cellular Complexity of Brain Tumors” is reflective of molecular genetics, functional aspects, and the role of psychological therapy in different types of brain tumors. The major aim in this chapter is to overwhelm the unsatisfactory status of the patients’ style of life by focusing on the application of both molecular genetics and tumor biology at diagnosis and through the medical care by a systematic follow-up/cell-based study. This may facilitate to access the

way towards an early detection and clinical managements of both adult and infant group of patients affected with brain tumors.

Chapter 14 “Genetics, Hematologic and Psychological Aspects of Leukemia” includes information on the fundamental genetic and clinical aspects of leukemia. The authors have emphasized on the key points of hematologic, molecular, cytogenetic, psychological aspects in leukemic patients, classification, and also bone marrow transplantation. They have underlined the screening strategy of patients’ psychological disorders, as a supportive strategy.

Chapter 15 “Cancer Stem Cell: from Conjecture to Reality” discusses the capability of the rare cancer stem cells (CSCs), in proliferation, tumor initiation, self-renewal, and invasive behavior in tumor metastasis. Author has also referred to the chemoresistance and recurrence as two notable characteristics of CSCs. However, diagnosis and therapeutic aspect of CSCs is still the main concern.

Chapter 16 “Cancer Immunotherapy: Friends or foe of Mental Health?” provides both negative and positive impacts of immunotherapy in cancer patients and their lifestyle. The authors, by providing examples, showed that the application of Interleukin-2 and IL-4 could lead to diverse depressive mode in patients. Besides, they have emphasized on the dual effects of “T-cell directed immunotherapies, dendritic cell vaccine and cytokine-induced killer cell” by destructing and improving life quality of cancer patients respectively which is a challenging item.

Chapter 17 “Challenges of Endocrine Therapy in Breast Cancer” focuses on the psychotherapeutic strategy in breast cancer patients who have received such therapy. Besides the fundamental insights of estrogen, the mechanisms involved in cell proliferation, the molecular based resistance to endocrine therapy, and the final outcome of estrogen therapy are also provided.

Chapter 18 “Skin Cancer: Genetics, Immunology, Treatments, and Psychological Care” is contemplative of different aspects in the fields of genetics, immunology, psychology, and therapy in patients affected with different types of skin neoplasms. The involved risk factors including positive family history of cancer, key gene mutations, and the immunosuppressive complications due to organ transplantation were also discussed. Besides, the epigenetics and immunologic alterations and environmental hazards are also considered as the pathogenic factors of skin cancers. Furthermore, different aspects of clinical managements and the patients’ psychological status are also discussed.

Chapter 19 “Alternative or Complementary Medicine: History and Legacy” focusses on the background, definitions of alternative, or complementary medicine. The common facts in “tradition of religious medicine” and alternative medicine are highlighted as “spiritual healing methods.” Furthermore, the healing aspects in Asia (India and China) are discussed. Author has underlined the initiating movement of a global link between academic and alternative medicine.

Chapter 20 “Pharmacotherapy of Cancer from the Perspective of Traditional Iranian Medicine” explores the historical insight and application of natural anticancer agents based on the Persian traditional medicine (TPM) in cancer. The historical paradigm of TPM is known as an ancient medical application written by Avicenna in eleventh century and by Razi in tenth century. Besides, the

corresponding information and the anticancer agents' prescription of TPM were also provided.

Chapter 21 "Nutrigenomics, Epigenetics and Pain in Cancer" deals with a thoughtful complication which is a challenging paradigm. The author has focused on physiological, cellular, epigenetic, central nervous system, nutrients/phytochemical, and chemical-based components in this chapter. By introducing different signaling pathways and considering the machinery of cellular/molecular biology and nutrigenomics, the focal aim of the author was to shape an interactive territory through which the available natural elements may play influential roles in healing process against pain in cancer patients.

Chapter 22 "Metastatic Breast Cancer at a Glance: Scenarios of BC Brain- and BC Bone- Metastasis by Illustrations" provides the viewpoints on the machineries and the interactive processes between different territories in metastasis. Breast cancer brain metastasis and breast cancer bone metastasis are the focal points in this chapter. The road map in metastatic BC, the essential managements, involved genes, impact of stem cells, growth factors, and circulating cancer cells are presented. Impacts of the cellular and molecular targets on prognosis, prediction, and survival in these metastases, and the personalized managements are also highlighted.

Chapter 23 "New Three-dimensional NLS-Bio-feedback Bio-resonance Approaches in Site Specific Diagnosis of Cancer" presents the application of "Non-linear-system and entropy method" to evaluate the body/environmental interaction. The authors have emphasized on the harmonization of internal organs and constant interaction between environment and biological machinery. Furthermore, they have stated that three-dimensional NLS is more suitable than 2D NLS for research purposes.

Chapter 24 "Human Cancer Cell Lines: Potential to Evaluate the Therapeutic Efficacy of Anticancer Agents" focuses on the application of cell line in evaluation of novel cancer drugs. The key information in such assessment includes the involved biological and molecular facts, and effectiveness of cancer drugs. Finally, the authors have highlighted the Aurora kinases as a target for research on cancer therapy.

Chapter 25 "Biostatistics Methods in Cancer Research: Cluster analysis of Gene Expression Data" deals with application of biostatistics in cancer including the modeling and classification of the relevant genes in cancer. Clustering is revealed to be a useful tool for classification of the genes involved in cancer at functional level. Besides, the authors have provided examples through which the suitability of methods in data analysis is elucidated.

Chapter 26 "Horizon of Cancer Genetics and Psycho-Art" is introspective of *Cancer, Culture, and Psycho-Art*. A summary of all chapters is provided, followed by some basic biological facts including the therapeutic topic and music therapy. In viewpoints, the peculiarities in cancer research have been delivered. Besides, further aims and tasks in cancer research are also included.

Two episodes are included which are reflective of experiences that may be useful as supportive elements for cancer patients.

*As the concluding words*, the question is How advisable is the personalized cancer managements to the cancer patients? The clinicians and scientists have negotiated and tried their best to achieve the strategy for personalized aims for cancer patients. Now we may ask: (1) where are we now? At the beginning or at the middle of HOPE-ROAD? And (2) are we far beyond we are hoping for? I have been cognizant of the evolutionary passageways' convolutions in cancer territory since 1978, but I am still exploring to reach to the main road. Is it required to consider the outlying restraints?

With an incredible hope to achieve our goals in cancer, let us change science to a value for cancer patients and those with benign tumor as well by trusting that *Success in cancer research is the leading bridging system to the cancer clinics*.

I do appreciate to receiving your comments.

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