



International Association of
Scientists
www.iasnetedu.com

Available online at www.jobiost.com

IJBLS 2023; 2(2):308-308



International Journal of
BioLife Sciences

Abstract

Molecular Signatures of Cancer: Implications for Diagnosis, Prognosis, and Therapeutics

Atefeh Hassanli*

Department of Nanobiotechnology, Faculty of Biological Science, Tarbiat Modares University, Tehran, Iran

Received: 15 September 2023

Revised: 24 September 2023

Accepted: 2 October 2023

Abstract

Background and aim: Cancer is a pervasive global health challenge, characterized by its multifactorial origins and intricate molecular basis. Initial diagnosis and treatment of cancer pose significant clinical hurdles, while prognosis determination remains a complex task. At the molecular level, cancer arises from somatic mutations in DNA, driving uncontrolled cell proliferation. It is important to delve into the molecular signatures of cancer and understand their significant implications for the diagnosis, prognosis, and therapeutic strategies associated with this disease, particularly with a focus on breast and lung cancers.

Methods: A systematic search was conducted across electronic databases, including PubMed, Web of Science, and Google scholar, using key terms such as "molecular signatures of cancer," "diagnosis," "prognosis," "therapeutics," and specific cancer types. Relevant articles published up to September 2023 were retrieved. Inclusion criteria encompassed studies investigating molecular biomarkers, genetic mutations, and signaling pathways associated with cancer. Exclusion criteria involved non-English language articles, studies published before 2010, and those lacking full-text availability.

Results: Genetic mutations, inherited gene mutations, and various environmental factors emerged as critical contributors to cancer's etiology. Key risk factors, including age, hormonal influences, and lifestyle choices, were identified, with age notably affecting breast cancer risk. These findings collectively underscore the complexity of cancer and its molecular basis, offering valuable insights for precise diagnosis, prognosis, and the development of targeted therapeutic approaches.

Conclusion: Understanding the molecular signatures of cancer is fundamental to improving its diagnosis, prognosis, and treatment. Genetic factors, risk factors, and specific molecular biomarkers provide valuable insights into cancer risk assessment and patient management.

Keywords: *Cancer, Molecular signatures, Diagnosis, Prognosis, Therapeutics*

***Corresponding author:** Atefeh Hassanli, Department of Nanobiotechnology, Faculty of Biological Science, Tarbiat Modares University, Tehran, Iran.

E-mail address: atefehassanli@gmail.com