

Accepted Manuscript

Title: Novel molecular adaptation in cancer treatment and diagnostics: The importance of molecular, cellular and ethical aspects in an emerging field

Author: Oscar E. Simonson

PII: S1044-579X(17)30176-1

DOI: <http://dx.doi.org/doi:10.1016/j.semcancer.2017.06.013>

Reference: YSCBI 1354

To appear in: *Seminars in Cancer Biology*



Please cite this article as: Simonson Oscar E. Novel molecular adaptation in cancer treatment and diagnostics: The importance of molecular, cellular and ethical aspects in an emerging field. *Seminars in Cancer Biology* <http://dx.doi.org/10.1016/j.semcancer.2017.06.013>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Novel molecular adaptation in cancer treatment and diagnostics

The importance of molecular, cellular and ethical aspects in an emerging field.

Oscar E. Simonson MD PhD

Uppsala University Hospital
Department of Cardiothoracic Surgery

Uppsala University
Department of Surgical sciences

The history of cancer therapy is long and much as the disease it has been evolving and become much more multifactorial over the years. In the beginning doctors and scientists were focused on finding a single cure for all cancers. They explored radical surgery or tried to find a miracle drug that could cure everything from prostate cancer to leukemia.

Sidney Farber however decided to focus exclusively on treating leukemia. Focusing on solving smaller problems in a selected group of patients made a significant contribution not only to this particular patient group but also provided a manual on how to effectively address the problems of malignant tumors (1). In the current landscape of cancer the problems that need to be solved can be divided into subgroups where the primary groups are diagnostics and therapeutics. Another important aspect in this rapidly expanding technical environment is ethics. The focus of this edition has been to present review articles addressing the current state of art within these topics to a mixed reader base of basic scientist as well as clinicians.

Although cancer therapy has moved considerable in the last decades there is still a need to find new and improve on existing therapeutically strategies. Matrix molecules such as laminins and their interactions with cancer stem cells highlight an interesting novel group of molecules that could be important for diagnostics as well as therapeutic targets (2). The vigorously studied signaling pathway JAK/STAT has more than 20 years of research under its belt. In the review by Huynh et al an update on novel insights into the role of STAT3 in immune suppression is provided as well as current therapeutic strategies in cancer that target the JAK/STAT3 are explored (3). The use of cellular strategies in cancer treatment have also been growing in the last decade and Dimberg et al describes the current state of two very promising fields, chimeric antigen receptor T-cells and Cancer vaccines based on dendritic cells. The two strategies are currently tested in clinical trials (4). These strategies also represent alternative approaches to the more traditional therapies using small molecules. Another important aspect of cancer is drug resistance. This is discussed from the viewpoint of the highly successful tyrosine kinase inhibitors and addresses the evolvement of tumors as well as key factors in order to improve therapeutic responses (5). In order to treat cancer, proper diagnostics needs to be done prior to therapy. The growing technological platforms have been improving cancer diagnostics. Samatov et al has addressed novel approaches to cancer diagnostics including the use of in vitro systems to predict individual therapeutic response in patients (6).

Download English Version:

<https://daneshyari.com/en/article/8361865>

Download Persian Version:

<https://daneshyari.com/article/8361865>

[Daneshyari.com](https://daneshyari.com)