

Encyclopedic Reference of Cancer

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Encyclopedic Reference of Cancer

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Preface

Cancer, although a dreadful disease, is at the same time a fascinating biological phenotype. Around 1980, cancer was first attributed to malfunctioning genes and, subsequently, cancer research has become a major area of scientific research supporting the foundations of modern biology to a great extent. To unravel the human genome sequence was one of those extraordinary tasks, which has largely been fuelled by cancer research, and many of the fascinating insights into the genetic circuits that regulate developmental processes have also emerged from research on cancer. Diverse biological disciplines such as cytogenetics, virology, cell biology, classical and molecular genetics, epidemiology, biochemistry, together with the clinical sciences, have closed ranks in their search of how cancer develops and to find remedies to stop the abnormal growth that is characteristic of cancerous cells. In the attempt to establish how, why and when cancer occurs, a plethora of genetic pathways and regulatory circuits have been discovered that are necessary to maintain general cellular functions such as proliferation, differentiation and migration. Alterations of this fine-tuned network of cascades and interactions, due to endogenous failure or to exogenous challenges by environmental factors, may disable any member of such regulatory pathways. This could, for example, induce the death of the affected cell, may mark it for cancerous development or may immediately provide it with a growth advantage within a particular tissue.

Recent developments have seen the merger of basic and clinical science. Of the former, particularly genetics has provided instrumental and analytical tools with which to assess the role of environmental factors in cancer, to refine and enable diagnosis prior to the development of symptoms and to evaluate the prognosis of patients. Hopefully, even better strategies for causal therapy will become available in the future. Merging the basic and clinical science disciplines towards the common goal of fighting cancer, calls for a comprehensive reference source to serve both as a tool to close the language gap between clinical and basic science investigators and as an information platform for the student and the informed layperson alike. Obviously this was an extremely ambitious goal, and the immense progress in the field cannot always be portrayed in line with the latest developments. The aim of the Encyclopedia is to provide the reader with an entrance point to a particular topic. It should be of value to both basic and clinical scientists working in the field of cancer research. Additionally both students and lecturers in the life sciences should benefit highly from this database. I therefore hope that this Encyclopedia will become an essential complement to existing science resources.

The attempts to identify the mechanisms underlying cancer development and progression have produced a wealth of facts, and no single individual is capable of addressing the immense breadth of the field with undisputed authority. Hence, the 'Encyclopedic Reference of Cancer' is the work of many authors, all of whom are experts in their fields and reputable members of the international scientific community. Each author contributed a large number of keyword definitions and in-depth essays and in so doing it was possible to cover the broad field of cancer-related topics within a single publication. Obviously this approach entails a form of presentation, in which the author has the freedom to set priorities and to promote an individual point of view. This is most obvious when it comes to nomenclature, particularly that of genes and proteins. Although the editorial intention was to apply the nomenclature of the Human Genome Organisation (HUGO), the more vigorous execution of this attempt has been left to future endeavours.

In the early phase of planning the Encyclopedia, exploratory contacts to potential authors produced an overwhelmingly positive response. The subsequent contact with almost 300 contributory authors was a marvellous experience, and I am extremely grateful for their excellent and constructive cooperation. An important element in the preparation of the Encyclopedia has been the competent secretarial assistance of Hiltrud Wilbertz of the Springer-Verlag and of Ingrid Cederlund and Cornelia Kirchner of the DKFZ. With great attention to detail they helped to keep track of the technical aspects in the preparation of the manuscript. It was a pleasure to work with the Springer crew, including Dr. Rolf Lange as the Editorial Director (Medicine) and Dr. Thomas Mager, Senior Editor for Encyclopedias and Dictionaries. In particular I wish to thank Dr. Walter Reuss, who untiringly has mastered all aspects and problems associated with the management of the numerous manuscripts that were received from authors of the international scientific community. It has been satisfying and at times comforting to see how he made illustration files come alive. Thanks also to Dr. Claudia Lange who, being herself a knowledgeable cell biologist, has worked as the scientific editor. Her commitment and interest have substantially improved this Encyclopedia.

As a final word, I would like to stress that although substantial efforts have been made to compose factually correct and well understandable presentations, there may be places where a definition is incomplete or a phrase in an essay is flawed. All contributors to this Encyclopedia will be extremely happy to receive possible corrections, or revisions, in order for them to be included in any future editions of the 'Encyclopedic Reference of Cancer'.

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