

Programing Cancer Death

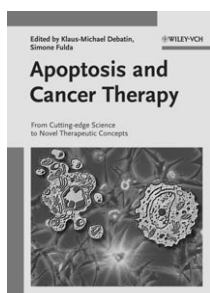
Apoptosis and Cancer Therapy: From Cutting-Edge Science to Novel Therapeutic Concepts

Edited by Klaus-Michael Debatin and Simone Fulda.

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Cancer is one of the main threats to human health, especially in industrialized countries. Thus, a great deal of the biomedical research money in those countries is spent for the investigation of basic principles underlying this very serious disease, and huge efforts are made to bring the new scientific knowledge into clinics. However, it is surely easier to fight cancer in cell-culture setups or in animal models than to cure patients. This is the point where the story of the present textbook *Apoptosis and Cancer Therapy* starts.

In theory, cancer is mainly due to an imbalanced tissue homeostasis, which is characterized by increased proliferation and/or decreased apoptosis of human cells of different origin. Whereas cell proliferation was one of the best-studied subjects in the 1960s, 70s, and 80s, apoptosis research during this time played only a minor part in the orchestra of scientific proceedings. This can be easily shown by a comparison of quotable publications dealing with the topics of cell proliferation or apoptosis. A PubMed search covering the years from 1960 to 1990 using the keyword "proliferation" yields some 40 200 hits, whereas during this time the keyword "apoptosis" is only mentioned in the title or abstract of 379 scientific publications.



If the last third of the 20th century may be called the "proliferation age" of biomedical research, then apoptosis has ushered in a new era of cell science. In a search of results published within the last two decades, apoptosis gathers 128 300 hits, thereby reaching the same level of importance as the still trendy cell proliferation (162 000 scientific papers). The topic of *Apoptosis and Cancer Therapy* is therefore right in the center of one of the hottest spots of current biomedical research, and it was the main task of this book's editors to filter the enormous bulk of available information and to allure competent authors from laboratories all over the world to comment on specialized topics surrounding the fascinating central theme of the book. Taking into account that even the combination of the keywords "apoptosis" and "cancer" brings up a total of about 45 700 scientific publications, the interested reader can be satisfied with the editors' selections. However, this reviewer misses the work of various research groups who have conducted numerous studies by analyzing the molecular basis of apoptotic pathways such as p53 mutations, Bax, and Bcl-2 levels in well-defined samples of cancer patients, and then comparing the results of the molecular analysis with the clinical outcome of the respective treatment regimens.

Apoptosis and Cancer Therapy is divided into 14 parts and a total of 43 chapters, each of which deals with a special subject of basic research ("The Role of CD95/CD95 Ligand Signaling in Apoptosis and Cancer", "Mechanisms of Tumor Necrosis Factor-Induced Death", "Inhibitors of Apoptosis Proteins", "Ceramide Signaling in Apoptosis and Cancer", etc.) or applied science ("Mouse Models in Cancer Research", "Molecular Imaging in Cancer", "Microarray-Based Expression Profiling: from Technical Basis to Diagnostic Perspectives", etc.), and is written

by accounted experts in the respective scientific field.

The composition of the book is well designed, and it shows a clear-cut layout including a detailed table of contents, a list of contributors (with institutions and addresses), and an index of important keywords. This enables the reader to easily access the contents of interest for his or her own research. Every chapter follows the same structure, with a short but informative abstract at the beginning, a subsequent introduction, several subchapters, and a conclusion. Most chapters contain explanatory or summarizing figures, which are helpful for the reader to understand the complex networks of cellular communication or intracellular signal transduction pathways. For example, the chapter "Life and Death Decisions in Response to Stress" elegantly combines the pathways of apoptosis, which mainly rely on proteolytic activation (limited proteolysis), with the stress-response pathways, which are often mediated by phosphorylation/dephosphorylation of target proteins. Another example is the chapter "Current Therapeutic Strategies Targeting Caspases in Disease", which gives a detailed compilation of drugs that target caspase function. Last but not least, the various chapters of the book contain detailed reference lists, which will guide researchers toward additional reading.

In summary, the book *Apoptosis and Cancer Therapy* gives a broad overview of the different fields of apoptosis research and, at the same time, goes into the mechanistic details of the special topics. It can therefore be recommended for scientists working in basic cancer research as well as for clinicians who are involved in the treatment and care of cancer patients.

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