

Encyclopedia of Pathology
Series Editor: J. H. J. M. van Krieken

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Anna Sapino
Janina Kulka *Editors*

Breast Pathology

 Springer

Encyclopedia of Pathology

Series Editor

J. H. J. M. van Krieken

The scope of this 15–20-volume set encompasses the entire field of pathology ranging from general pathological terms to specific diseases to diagnostic methods. Published as print edition and online version (eReference) in the Springer Reference Program each topical volume sticks out by clearly and homogenously structured entries. A team of international experts guarantee that the essays and definitions are scientifically sound. The A-Z format of each topical volume allows readers to quickly and easily find the information they need. The major advantage of the encyclopedia is the way it makes relevant information available not only to pathologists, but also to all clinicians and researchers of the neighboring disciplines working together with pathologists who occasionally might wish to look up terms online.

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Editors

Breast Pathology

With 282 Figures and 29 Tables

 Springer

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*To our Masters and Teachers,
Dr. Gianni Bussolati
Dr. Pietro Maria Gullino
Dr. Judit Mohácsy
Dr. John Douglas Davies*

Series Preface

When Denis Diderot started the first encyclopedia in the eighteenth century, it was a groundbreaking and timely event. It was the time of the Enlightenment, and knowledge was seen as something which was to be spread to many and to build upon by creating new knowledge. His ambition was to bring all available knowledge together in one series of books so that every person who could read has access to all there is to know. Nowadays, in a time of easily accessible knowledge, the question is whether there is still need of an encyclopedia. It is obvious that the amount of knowledge is such that it is not possible to bring it all together in one encyclopedia. One may argue that the Internet is the encyclopedia of today, but that misses an important point of Diderot, a point that is probably even more valid today. He created a team that valued information and selected what was worth to be presented in the encyclopedia. He recognized that science is not a democratic process where the majority decides what is true and valuable, but rather a growing body of knowledge in which radical ideas from individuals may bring about huge changes, even though most would reject these new ideas in the beginning. Indeed, the Internet lacks such authority and it is not easy to select valuable information from nonsense, especially when one is not an expert in a certain field.

It is therefore that an encyclopedia is only as good as the team that creates it. It goes without saying the team that is responsible for the Encyclopedia of Pathology consists of recognized experts in the field. Pathology is a growing medical discipline in which the amount of information is probably already more than that the whole encyclopedia of Diderot contained. For experts in subspecialties within pathology, it is already almost impossible to keep an overview on new developments and to select relevant from less relevant new information. There are plenty of textbooks for every disease group, and scientific literature is available for most pathologists through PubMed or GoogleScholar. What is lacking is a systematic overview of what we know in an alphabetical order, easily accessible to all. The encyclopedia of pathology fills that gap. It is written by experts with the general pathologist in mind and also specialist from other disciplines. It will consist of a series of volumes on subspecialties, and when it is completed there will be an online version combining these. Yearly updates from the online version is foreseen and readers are welcome to provide suggestions for improvement. These will be judged by the editorial team in order to keep the encyclopedia authoritative yet using the expertise of many.

Finally, it is my hope that the encyclopedia will grow into a reliable body of knowledge in pathology, enabling communication through a common language, and that it will grow and adapt to new developments.

Nijmegen, The Netherlands
September 2019

J. H. J. M. van Krieken
Series Editor

Volume Preface

This new book on breast pathology as part of the Encyclopedia of Pathology series intends to summarize the present state of knowledge about breast diseases. Encyclopedia of Pathology, and its individual volumes, being living documents, will be subject to updates, inclusion of new knowledge, and new data in the online version of the series. The printed version is, therefore, a snapshot of breast pathology from the years 2018 to 2019. Having said that, we, editors of this volume, hope that our readers will find this book useful and likeable even years from now. We ambitiously hope and wish this book becomes one of those at your right-hand side by the microscope.

We are very grateful to all coauthors of the book who did their best to write excellent chapters summarizing up-to-date knowledge about the respective subjects included in the table of contents of this book. Going through the individual contributions during the review process has been both great professional and personal experience for us. We thankfully acknowledge also the continuous support of our editorial assistants at Springer, Mrs. Sunaina Dadhwal and Mrs. Neha Thapa.

We wish our readers pleasant working hours assisted by this volume of Encyclopedia of Pathology!

Candiolo, Italy
Budapest, Hungary
September 2019

Anna Sapino
Janina Kulka
Volume Editors

Editors Biography



Dr. Anna Sapino obtained her M.D. degree at the University of Turin (Italy) in 1982 and completed her residency in anatomic pathology at the University of Milan in 1986. She started her career as a consultant pathologist at the University Hospital in Turin in 1984 under the supervision of Prof. Gianni Bussolati. In 1987 she accrued experience in experimental studies on pre-neoplastic breast lesions through a sabbatical period spent in the USA at the Michigan Cancer Foundation and at the Columbia University. Upon her return to Italy, she set up her own cell biology lab working on effects of hormones on breast cancer cells and mouse mammary gland organ cultures. Her research activity has always been paralleled and inspired by breast cancer diagnostic pathology and her career orientation reflects this approach. In 1998 Dr. Sapino was appointed Associate Professor and in 2005 full Professor of Anatomic Pathology and Histopathology at the School of Medicine of the University of Turin. From 2010 to 2015 she was recruited as Director of Surgical Pathology at the University Hospital (Città della Salute e della Scienza) in Turin and from 2013 to 2015 as Director of the Department of Laboratory Medicine, then she moved to Candiolo Cancer Centre FPO-IRCCS (Italy) as Director of the Pathology Unit. This unit is recognized as training center for breast pathology by the European Society of Pathology (ESP). In 2017 she became Scientific Director of Candiolo Cancer Institute FPO-IRCCS, a private nonprofit institution endorsed by the Italian Ministry of Health for oncology research. In 2018 Dr. Sapino had also been appointed Director of the Department of Medical Sciences of the School of Medicine at the University of Turin (Italy). She has been member of the European Working Group for Screening of Breast Pathology and coauthor of the European Guideline for Breast Cancer Screening. From 2014 to 2018 she had been chairing the European Working Group of Breast Pathology of the ESP. She is member of the teaching staff for breast pathology of the European School of

Pathology (EScoP). She serves as member of editorial boards of many scientific journals and as reviewer for international grant proposals. She has been lecturing at several national and international meetings. Her scientific works are published in international peer-reviewed journals (more than 300 papers, H-index: 49). Over the years her scientific activity has focused on experimental and clinicopathological studies on breast cancer, with the key mission to translate the achievements of basic science to the patient's bedside.



Dr. Janina Kulka studied medicine at Semmelweis University, Budapest. After receiving her degree in 1982, she successfully applied for a trainee position in the 2nd Department of Pathology of Semmelweis University. Four years later, after the specialization exam, she became Assistant Professor in the same department. From 1992 to 1994 she was Research Fellow at the South West Regional Breast Pathology Unit of the University of Bristol, UK, under the supervision of Dr. J.D. Davies. She received her Ph.D. in 1999, became full Professor of pathology in 2008, and received her D.Sc. degree in 2018. She has also served as a pathologist at the MaMMA Clinic, the first multidisciplinary breast screening center in Hungary, founded in 1992. Dr. Kulka was a member of the Mammographic Screening Subcommittee of the “For a Healthy Nation” program, took an active part in the establishment of mammographic screening centers in Hungary in 2002, and subsequently participated in the regular external quality control procedures of the centers. She introduced specimen mammography as part of routine workup of screen-detected breast lesions and assembled the first national breast pathology guidelines that included a description of workup of screen-detected breast lesions. She is coauthor of the pathology chapter of the Hungarian multidisciplinary breast consensus document. She has been teaching medical students for more than three decades and breast pathology for residents in postgraduate courses for the last 15 years. In 2002 she joined and became a member of the European Working Group for Breast Screening Pathology. She contributed coauthored chapters to the European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis, to the second edition of the *Oxford Textbook of Oncology*, and the fourth and fifth editions of the *WHO Classification of Tumours of the Breast* volume. Recently, she was invited to participate in the development of a dataset for the reporting of invasive breast cancer by ICCR. She is author of several breast pathology chapters in Hungarian pathology, oncology, and surgery textbooks. She is author of more than

140 peer-reviewed scientific papers and contributed lectures to more than 150 national and international conferences. Dr. Kulka had been Secretary and later President of the Hungarian Society of Pathologists, and a member of the Executive Committee of the European Society of Pathology (ESP). She has been a member of the Pathology Council of the Medical College, President of the Hungarian Division of IAP, and a member of the Advisory Board and the Educational Committee of ESP. Dr. Kulka has three grown-up children.

Series Editor Biography



J. H. J. M. van Krieken is a pathologist with special expertise in the fields of hematopathology and the pathology of the gastrointestinal tract. He was Professor for tumor pathology since 1999 and kept from 2005 to 2015 the Chair of pathology at the Radboud University Nijmegen Medical Centre in Nijmegen. He furthermore served as Chairman of the Board of the Oncology Institute of the Radboud University, Nijmegen, from 2008 to 2016. Since 2016, he is the Rector Magnificus (Vice Chancellor) of the Radboud University.

He was the Treasurer/Secretary of the European Association for Hematopathology from 2000 to 2008, from 2003 to 2011 the Treasurer, from 2013 to 2015 the President of the European Society for Pathology (ESP), and from 2015 to 2017 the past-President of the ESP. Furthermore, he coordinated the ESP quality assessment program from 2008–2018 and was the chair of IQN path from 2005–2008. He is (co) author of more than 600 papers in peer-reviewed journals (H-index 86), has written chapters in books on pathology and oncology, is editor of a Dutch textbook on oncology, and serves on the editorial board of the *American Journal of Surgical Pathology*, was managing editor of *Virchows Archive* from 2009–2015, and was the chief editor of the *Journal of Hematopathology* from 2008–2018. Since 2011, he is member of the German Academy of Sciences Leopoldina, and since 2014 of Academia Europea and Honorary Fellow of the Royal Society of Pathology of Great Britain and Ireland.

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