

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

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Encyclopedia of Pathology

Series Editor

J. H. J. M. van Krieken

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Pathology of the Gastrointestinal Tract

With 480 Figures and 26 Tables

 Springer

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Dedicated to Els, Lotte, Bas and Wouter who are my inspiration

J.H.J.M. van Krieken

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 Google Scholar. 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
April 2017

J.H.J.M. van Krieken

Volume Preface

Knowledge in all fields of science is expanding very rapidly together with advances in technology allowing easy access to publications. The reader has a whole variety of options ranging from published hardcover books placed on the bookshelves to online articles accessible via the Internet. The major advantage of the *Encyclopedia of Pathology* (published as print edition and online version) is its structure, providing alphabetically arranged entries, each of which with a detailed description of a specific pathological disease entity, allowing the readers to quickly and easily find the information they need.

This encyclopedia volume covers the complete field of the pathology of the gastrointestinal (GI) tract and is organized in two sections: Upper Gastrointestinal Pathology and Lower Gastrointestinal Pathology. More than 200 entries/key terms related to various GI disorders ranging from developmental abnormalities, infectious diseases, and inflammatory conditions to neoplastic processes have been entered by more than 75 authors, all experienced and/or interested in GI pathology. Each entry consists of a brief definition and clinical and histopathologic features of the entity accompanied with gross and microscopic photographs, tables, and figures. An average of five references was also provided for each entry. In order to facilitate the search function, key terms were highlighted and activated so that “clicking” would be possible to search through the entries.

We sincerely hope that the volume will help the pathologist to get basic information related to the search term which would ideally prompt the reader to search for more. As the GI team including the editors and the authors, we would like to share our great enthusiasm for GI pathology with the readers.

Porto, Portugal
Lisbon, Portugal
Ankara, Turkey

Fátima Carneiro
Paula Chaves
Arzu Ensari

Acknowledgments

Pathologists serve everyday new patients based on the knowledge collected in this encyclopedia gained over more than a century from other patients and pathologists. I am therefore feeling a deep gratitude to all of them. I also like to thank all who have contributed to the large amount of items but especially to the editors who had the difficult task to select and collect, evaluate, and approve.

J.H.J.M. van Krieken

As the editorial team we would like to express our gratitude to the authors who have contributed to this volume of *Encyclopedia of Pathology*. It was a great amount of work for the authors who all have wholeheartedly contributed to the completion of this encyclopedia. Their meticulous efforts made it possible to have an extensive overview of GI pathology. We, as editors, would therefore like to thank the team of international experts who have accepted the challenge to collaborate in this initiative with their enthusiasm and great interest in GI pathology. They have spent countless hours drafting, revising, and finalizing their entries. We hope that you have enjoyed this time and have gained as much from your contribution as the reader pathologists will benefit from your work.

Fátima Carneiro
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Editors Biography



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Fátima Carneiro, M.D., Ph.D., is Full Professor of Pathology (Medical Faculty of Porto), Head of Department of Anatomic Pathology (Centro Hospitalar São João), and Senior Researcher at Ipatimup/i3S. She is past president of the European Society of Pathology (ESP), chair of the Advisory Board of the ESP, coordinator of the Portuguese Network of Tumour Banks, member of Council of the International Gastric Cancer Association, and fellow of the European Academy of Cancer Sciences. She was delegate of Portugal to the Committee for the FP7 specific program “Cooperation” of the European Commission and is a member of the Scientific Advisory Board of the ERA-NET on translational cancer research (TRANSCAN). She is coauthor of more than 300 peer-reviewed publications (“h factor”: 57 – Scopus, accessed April 2017) and 28 book chapters, including books issued by the WHO (*Pathology and Genetics of Tumours of the Digestive System*, 3rd Edition, 2000, and *WHO Classification of Tumours of the Digestive System*, 4th Edition, 2010), the UICC (*Comprehensive Tumour Terminology Handbook*, 2001), and the IARC (*World Cancer Report* 2014). She is one of the editors of the WHO Blue Book on “Tumours of the Digestive System” and section editor of the *Encyclopedia of Pathology*. Her field of specialization is gastrointestinal pathology. Her research is directed towards the understanding of the etiopathogenesis and molecular pathology of gastric carcinoma, in the sporadic and hereditary settings, with a particular interest in hereditary diffuse gastric cancer (HDGC).



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Arzu Ensari finished her pathology training in Ankara in 1991 and went to UK for a Ph.D. on “Cellular and Molecular Pathology of Gluten Sensitivity” under the supervision of Dr. Michael N. Marsh between 1991 and 1994. She worked with Dr. Yo Kato (Japan) for 3 months in 1995 on GI cancer and precursor lesions. Following her return to the department she started to do GI pathology. In 2008 she worked in Toronto, Canada, as a visiting professor

with Professor Robert Riddell mainly on IBD. Dr. Ensari was the former chair of the GI pathology working group of ESP. She is a faculty member of EScoP GI pathology working team. Dr. Ensari is currently working as a full-time Professor in the Department of Pathology, Ankara University Medical School. Dr. Ensari has published many articles and book chapters in the field of GI pathology with particular interest in malabsorption, IBD, polyps, and colorectal cancer.

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 coordinates the ESP quality assessment program and is the chair of IQNpath. He is (co) author of more than 500 papers in peer-reviewed journals (H-index 79), 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*, is managing editor of *Virchows Archiv*, and is the chief editor of the *Journal of Hematopathology*. 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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