

# Tumors of the Mammary Gland

*AFIP Atlases of  
Tumor and  
Non-Tumor Pathology*



AMERICAN REGISTRY  
OF PATHOLOGY  
Publication & Education

***ARP PRESS***  
*Arlington, Virginia*

Director of Publications: Amy Goldenberg, PhD  
Production Editor: Dian S. Thomas  
Technical Editor: Elizabeth Tomlinson  
Sales and Events Manager: Heidi Guerrero  
Copyeditor: Audrey Kahn

American Registry of Pathology  
Arlington, Virginia 22203  
www.arppress.org  
ISBN 1-933477-36-9  
978-1-933477-36-7

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AFIP ATLASES OF TUMOR AND NON-TUMOR PATHOLOGY

Fifth Series  
Fascicle 18

# TUMORS OF THE MAMMARY GLAND

by

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Published by the  
*American Registry of Pathology*  
Arlington, Virginia  
2024

# AFIP ATLASES OF TUMOR AND NON-TUMOR PATHOLOGY

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## DEDICATIONS

To my family, who have encouraged and cheered for me every step of the way.

**Laura C. Collins, MD**





## ACKNOWLEDGMENTS

I am grateful to have been given the opportunity to train, and join the faculty at Beth Israel Deaconess Medical Center and Harvard Medical School in Boston. To be surrounded by individuals dedicated to outstanding patient care, scientific inquiry, and the education of generations of physicians is a daily inspiration.

**Laura C. Collins, MD**



## EDITOR'S NOTE

The Atlases of Tumor Pathology have a long and distinguished history. They were first conceived at a cancer research meeting held in St. Louis in September 1947, as an attempt to standardize the nomenclature of neoplastic diseases. The first series was sponsored by the National Academy of Sciences-National Research Council. The organization of this formidable effort was entrusted to the Subcommittee on Oncology of the Committee on Pathology, and Dr. Arthur Purdy Stout was the first editor-in-chief. Many of the illustrations were provided by the Medical Illustration Service of the Armed Forces Institute of Pathology (AFIP), the type was set by the Government Printing Office, and the final printing was done at the Armed Forces Institute of Pathology. The American Registry of Pathology (ARP) purchased the Fascicles from the Government Printing Office and sold them virtually at cost. Over a period of 20 years, approximately 15,000 copies each of nearly 40 Fascicles were produced. The worldwide impact of these publications over the years has largely surpassed the original goal. They quickly became among the most influential publications on tumor pathology, primarily because of their overall high quality, but also because their low cost made them easily accessible the world over to pathologists and other students of oncology.

Upon completion of the first series, the National Academy of Sciences-National Research Council handed further pursuit of the project over to the newly created Universities Associated for Research and Education in Pathology (UAREP). The Second Series was started, generously supported by grants from the AFIP, the National Cancer Institute, and the American Cancer Society. Dr. Harlan I. Firminger became the editor-in-chief and was succeeded by Dr. William H. Hartmann. The Second Series Fascicles were produced as bound volumes instead of loose leaflets. They featured a more comprehensive coverage of the subjects, to the extent that the Fascicles could no longer be regarded as "atlases" but rather as monographs describing and illustrating in detail the tumors and tumor-like conditions of the various organs and systems.

Dr. Juan Rosai was appointed as editor-in-chief of the Third Series, and Dr. Leslie Sobin became associate editor. A distinguished Editorial Advisory Board was also convened, and these outstanding pathologists and educators played a major role in the success of this series, the first publication of which appeared in 1991 and the last (number 32) in 2003.

The same organizational framework applied to the Fourth Series, meticulously edited by Dr. Steven Silverberg with Dr. Ronald DeLellis as the associate editor. With UAREP and AFIP no longer functioning, ARP remained the responsible organization. The Fourth Series volumes were hardbound with illustrations almost exclusively in color. There was also an increased emphasis on the cytopathologic (intraoperative, exfoliative, or fine needle aspiration) and molecular features that are important in diagnosis and prognosis. At the time of the Fourth Series, ARP also produced

Atlases of Non-Tumor Pathology; these volumes were numbered separately from the tumor volumes.

As in the prior series, the goal of the Fifth Series includes a continuous attempt to correlate, whenever possible, the nomenclature used in the Fascicles with that proposed by the World Health Organization Classification of Tumors, as well as to ensure a consistency of style. Including molecular diagnostics is more important than ever, as is the availability of an online component, a more nimble website ([www.arppress.org](http://www.arppress.org)), and a social media presence. Now in this series, the tumor and non-tumor volumes are combined and consecutively numbered as the Atlases of Tumor and Non-Tumor Pathology. Close cooperation between the various authors and their respective liaisons from the Editorial Board will continue to be emphasized in order to minimize unnecessary repetition and discrepancies in the text and illustrations.

Particular thanks are due to the members of the Editorial Advisory Board, our reviewers, the editorial and production staff, and the individual Fascicle authors for their ongoing efforts to ensure that this series is a worthy successor to the previous four.

**Jason L. Hornick, MD, PhD**

## PREFACE

It has been two decades since the publication of *Tumors of the Mammary Gland, AFIP Atlas of Tumor Pathology, 3rd Series, Fascicle 7* by Drs. Rosen and Oberman. That publication guided the diagnosis of breast disease in an era predating the transformation of diagnostic surgical pathology by the multitude of ancillary immunohistochemical, biomarker, and molecular analyses now in routine clinical practice. In writing this Fascicle, I am indebted to the authors of the earlier series on whose foundation morphologic criteria were developed. Much has changed in the detection, diagnosis, and management of breast disease over the last 20 years, in particular for patients with invasive breast carcinoma. It is my hope that this Atlas conveys to readers the challenge and the joy of diagnostic breast pathology, as well as excitement about the advances that have been, and have yet to be, made in our field.

**Laura C. Collins, MD**

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