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The International Academy of Cytology  
Yokohama System for Reporting Breast  
Fine Needle Aspiration Biopsy  
Cytopathology

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Andrew S. Field • Wendy A. Raymond  
Fernando Schmitt  
Editors

# The International Academy of Cytology Yokohama System for Reporting Breast Fine Needle Aspiration Biopsy Cytopathology

 Springer



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*I dedicate this atlas to my wife, Alison Field, who has supported me during my pathology training, my cytopathology career, and my research and writing.*

*Andrew S. Field*

*I dedicate this atlas to my husband, Grant, and daughters, Catie and Jacqui, who have always supported my academic endeavours despite the consequence of time taken away from the family.*

*Wendy A. Raymond*

*I dedicate this atlas to my partner, Sule Canberk, for being understanding and supportive during this period as well as to all people who have helped me during my career.*

*Fernando Schmitt*

*In addition, we dedicate this atlas to all those who have taught us the art of cytopathology, especially Torsten Lowhagen and Svante Orell, and to those who currently and in the future will perform and report breast fine needle aspiration biopsies.*

*Andrew S. Field*

*Wendy A. Raymond*

*Fernando Schmitt*

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## Preface

The development of this atlas began with a meeting sponsored by the International Academy of Cytology (IAC) of a group of cytopathologists interested in breast fine needle aspiration biopsy cytology at the International Congress of Cytology in Yokohama, in May 2016. This leads to the publication of a proposal in *Acta Cytologica* in 2017 and an expansion of the steering group to include a team of writers each with a specific role in performing a literature search and drafting material for a particular chapter in an atlas.

The proposal was presented at a number of national and international meetings, and the drafts were collated and edited into chapters, which were then distributed to the members of each chapter's writing team and the wider group of authors for comment. A series of questions based on the definitions, discussions, and management options were presented in a questionnaire posted on a website, and the broader community of pathologists and clinicians were invited to comment. The response to the questionnaire was very positive, and the various suggestions were assessed by the editorial team and incorporated where appropriate. The final drafts were recirculated and re-edited, photographic illustrations were collected, and this atlas was produced.

The IAC Yokohama System for Reporting Breast Fine Needle Aspiration Biopsy Cytopathology uses five clearly defined categories described by specific terms, and each has a specific risk of malignancy. The five categories are insufficient/inadequate, benign, atypical, suspicious of malignancy, and malignant. Each category and its risk of malignancy are linked to management recommendations, which include several options because it is recognized that diagnostic infrastructure, such as the use of core needle biopsy and ultrasound guidance, varies between developed and low- and middle-income countries. The system is intended for global use and is based on cytomorphology and includes key diagnostic cytological criteria for each of the many lesions and tumors found in the breast.

In addition, the atlas includes chapters on current and potential future ancillary tests, liquid-based cytology, nipple cytology, and management. There is also a chapter providing an overview of an approach to the diagnosis of direct smears of breast fine needle aspiration biopsies: breast cytology crucially relies on the expertise of those performing the biopsy and preparing the direct smears and on the cytopathologist interpreting the material on the slides.

The authors believe that the development of this system will provoke discussion and comment and enhance breast cytology reporting internationally. The authors sincerely hope that the system will encourage the use of breast

fine needle aspiration biopsy cytology and that it will lead to a greater recognition of the importance of the expertise required to perform the procedure, improve interpretation of the material, and standardize reporting. In addition, the system will facilitate communication with breast clinicians, further research into breast cytology and related molecular pathology, and improve patient care.

The editors thank all the authors involved in this project, the publication team at Springer, and the International Academy of Cytology community.

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Porto, Portugal

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Wendy A. Raymond

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