Molecular Applications in Cytology

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Editor

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Springer

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ISBN 978-3-319-74940-2 ISBN 978-3-319-74942-6 (eBook)
https://doi.org/10.1007/978-3-319-74942-6

Library of Congress Control Number: 2018948164

Printed on acid-free paper

This Springer imprint is published by the registered company Springer International Publishing AG part of Springer Nature.
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

To do more with less… this is the great challenge for the pathology in the next decades. Recently many patients are managed based on diagnosis performed in small biopsies or cytology. Molecular techniques in the routine pathology are changing paradigms as did the introduction of immunohistochemistry some decades ago and are preferentially used on histological material. The goal of this book is to demonstrate that most of these techniques can be easily applied to the cytological material. In fact, cytological samples present numerous advantages over histological material. These include the ability to check the quality of the tissue immediately after harvesting, better preservation of RNA/DNA and the possibility of conducting extensively genomic studies on small amounts of cytological material obtained by fine-needle aspiration or from effusions, urine, among others. In turn, this minimizes the need for more invasive procedures and allows for more frequent re-sampling enabling monitoring of the disease along the time.

Molecular techniques in cytological samples have a wide array of applications. Depending on the method, they can be applied for diagnosis, subtype classification, and prognostic and predictive purposes. In this book we cover from the main aspects of pre-analytical phase, the applications in different organs and systems, through to the clinical integration of the results. Of course in this field of medicine knowledge advances so rapidly that a book cannot include all the more recent discoveries. However, the readers of this book can acquire very solid information in the different fields of molecular cytology that allow them to follow any new finding in the field. This book was written to the cytopathologists that even not practicing inside a molecular lab can acquire enough knowledge in the field that allow them to discuss the results and applications of different molecular techniques.

Now it is time to thank all those who have directly or indirectly collaborated for this book. For you the reader, it is time to relax, open the book and enjoy!

Porto, Portugal — Fernando C. Schmitt

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