Preface

In the era of precision medicine, physicians are increasingly in need of more definitive diagnostic, prognostic, and predictive information derived from small biopsy specimens such as cytology samples to guide effective patient care. Cytopathology is well poised to meet this challenge. Whilst the traditional cytomorphologic component of cytology practice is still valid, there have been enormous advances made in the field of cytopathology thanks to transformative technology and innovative individuals that have augmented the cytologists' ability to meet the demands of modern medicine. The purpose of this book is to describe, illustrate, and review many of the most recent developments regarding modern techniques employed in cytopathology.

This contemporary monograph is intended for all cytologists, including cytopathologists, cytotechnologists, cytology lab assistants, trainees, research scientists, and anyone who is interested in the field of cytopathology. We have invited pioneering experts in their respective fields to author these chapters. This book is not only the culmination of their groundbreaking work and effort, but also represents a critical review of the current literature. We have attempted to provide readers with an informative and comprehensive aid so that they may better appreciate how emerging technology has been applied to cytology.

Readers will note that the book begins with a chapter by Rollins [1] about cytopathologists performing their own ultrasound-guided fine needle aspirations (USFNA). This chapter explains how the scope of practice for clinical cytologists has expanded by adding USFNA to their reper-

toire. The next chapter, by Saqi and Balassanian [2], covers cell blocks, addressing up-and-coming techniques and their practical applications. Cytology material has proven to be increasingly suitable for many new ancillary studies, often averting the need to procure large tissue samples with invasive methods. This premise is highlighted in the chapter on fluorescence in situ hybridization by Monaco and Dacic [3] as well as the chapter by Roy-Chowdhuri et al. [4] on next-generation sequencing in cytopathology. Cytopathologists have also been leading the charge with liquid biopsy, an even lesser invasive procedure than FNA. The field of liquid biopsy is methodically reviewed in the well-illustrated chapter by Katz et al. [5] about recent advances in the detection of circulating tumor cells and their clinical application. The adoption of digital imaging in cytology is another area that has grown significantly for both clinical and non-clinical applications. This book accordingly incorporates several relevant chapters including computer-assisted Pap test screening by Pantanowitz and Bui [6], telecytology for rapid on-site evaluation by Hanna et al. [7], whole-slide imaging by Li et al. [8], and image analysis by Pantanowitz and Bui [9]. The final chapter by Pantanowitz et al. [10] encompasses a potpourri of exciting topics, including clinical trials in cytology and cytobanking. However, it does not matter in which order the chapters of this book are read as each chapter represents a stand-alone contemporary review of emerging topics in cytopathology. We hope that you will find this monograph to be thought-provoking and a valuable reference for your practice.

Acknowledgements

The editors are thankful to all of the contributors for their expertise and effort. Special thanks are extended to Dr. Philippe Vielh, who envisioned and propelled this project. We also express our gratitude to our family for their unwavering support of our academic work.

Disclosure Statement

The editors have no conflicts of interest to declare.

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