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## Preface

Critical molecular mechanisms underlying gastrointestinal (GI) neoplasia have been substantially unraveled in recent years. This has resulted from technological advances such as the genome project data and large-scale “omic” methods, combined with the application of classic molecular and chemical testing approaches and established procedures for pathologic evaluation of tissue and cellular samples. This progress is leading to the development of new approaches for treatments and, in parallel, novel diagnostic workups of gastrointestinal cancers, integrating specific molecular testing in routine pathology practice. Moreover, identification of disease susceptibility genes has enabled the medical community to better manage and prevent diseases that have hereditary traits.

While significant advances have been harnessed, much remains to be learned in the spectrum of neoplastic diseases of the gastrointestinal tract. Critical elements of research that have allowed progress in the various fields of GI neoplastic disease include the availability of animal models, cell culture models, and basic and translational research approaches utilizing prospective or archived specimen material, and such advances are reviewed here.

In this book, we review the molecular aspects that characterize the spectrum of neoplasms that affect the GI tract, providing the reader with up-to-date knowledge at the level of (1) the molecular basis of the individual neoplasms, spanning the carcinomas of esophagus, stomach, small bowel, colon, and rectum; neuroendocrine tumors; and gastrointestinal stromal tumors; (2) molecular testing approaches for diagnosis or for characterization of target genes for selective targeted therapies, with a review of recommended guidelines for clinical application whenever available; (3) molecular testing for hereditary predisposition or disease risk for GI cancers.

The last three chapters in the book are forward-looking, focused on the molecular mechanisms of metastasis, detection of circulating tumor cells and nucleic acids, and the use of tumor markers for gastrointestinal cancers. These are current areas of research interest and future clinical practice and serve to complement the information reviewed for the individual neoplasms.

It is clear that the rapid pace of discovery is unmatched by the definitive validation of many molecular alterations that are identified through ongoing basic and translational research of cancer. Given this scenario we felt it would be impractical to provide coverage of all areas of research in each tumor type, and ultimately, authors for each of the chapters identified what in their opinion are the most relevant topics to cover for each tumor type at the time of writing, realizing that novel findings that may be clinically relevant may become a reality as the book is published. Nevertheless, basic principles of molecular pathogenesis and diagnosis of GI cancers are extensively covered and will remain a foundation for clinical practice as new knowledge emerges.

We expect that this book will be useful to a large spectrum of professionals, from pathologists, laboratorians, clinical gastroenterologists and oncologists, and trainees at various levels such as medical students, residents, fellows, and postdoctoral fellows, as well as investigators interested in the area of gastrointestinal cancer.

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