

## PREFACE

Ovarian cancer is a leading cause of gynecological cancer-related deaths in women worldwide. Currently, there are no feasible screening strategies for the early detection of ovarian cancer. In some cases, at the time of diagnosis, the cancer cells are chemoresistant and invasive. While there is no curative treatment of advanced ovarian cancer, our understanding of the disease has significantly advanced in the past decade. This book brings together an international team of experts to discuss these advances in our understanding of ovarian cancer with emphasis on the subtypes, pathological mechanisms, and management.

*Chapter 1* provides a comprehensive account of rare ovarian tumors. It discusses the pathologic and molecular features of ovarian cancers, highlights the evolution of treatment to modern-day standards, and the landmark trials that contributed to these changes. *Chapters 2* and *3* elegantly dissect the role of malignant ascites in ovarian cancer. Ascites is an inflammatory process that induces the abnormal accumulation of a large amount of fluid into the peritoneal cavity of patients with advanced ovarian cancer. The accumulation of malignant ascites in the peritoneum provides a pro-inflammatory tumor-promoting microenvironment for cancer cells and is associated with chemoresistance and poor prognosis. Despite proof that the accumulation of peritoneal fluid signifies poor outcome for ovarian cancer patients, the role of malignant ascites in promoting metastasis and therapy resistance remains poorly understood. *Chapter 2* covers the role of malignant ascites in chemoresistance of ovarian cancer and *Chapter 3* summarizes the role of malignant ascites as a liquid tumor microenvironment in the development and progression of ovarian cancer.

Inflammation is an established factor in carcinogenesis, and protein complexes named inflammasomes, along with their components and subproducts, such as interleukins and other molecules, have been explored as promising potential targets for the detection and management of ovarian cancer. *Chapter 4* provides an overview of the role of inflammasomes in ovarian cancer. Theranostics is a novel concept of precision medicine which combines molecular imaging and molecular targeted therapy in one package. Nuclear medicine has been a driving force in this area. In *Chapter 5*, the evolving role of nuclear medicine in the early, non-invasive detection and further management of ovarian cancer is discussed. Also, some of the current and future theranostic possibilities in the quest for targeted treatment are presented.

Despite current treatment strategies, most high grade serous ovarian cancer (HGSOC) patients, especially those who are with stage III-IV HGSOC, will relapse. The management of recurrent HGSOC is a challenging issue for oncologists. *Chapter 6* provides an overview of the current optimal management of recurrent HGSOC. The advent of immunotherapy and its successes in hematologic malignancies, melanoma and lung cancer led to immense interest in exploring its effects in advanced stage and recurrent gynecologic cancers. *Chapter 7* discusses some of the preclinical studies and clinical trials investigating vaccines and other immunotherapies in gynecologic cancer patients. Key advances in the development of cancer vaccines, adjuvants, immune modulators, adoptive cell therapies for

the generation of optimal immunogenicity, and immuno-persistence and the ultimate eradication of resistant, advanced, and recurrent gynecologic cancers are presented.

I thank the authors for their intellectual contributions and diligence toward the fruition of this book. This book is aimed primarily at clinicians and scientists, but many areas will also be of interest to the layperson.

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