

Progress in cancer genomics and molecular biology has led to straightforward diagnostic and clinical improvements in the context of genitourinary tumors. In a period of time of approximately 10 years these changes have opened the way to the route towards precision medicine in this field, with extremely enthusiastic consequences for patients' prognosis and quality of life. The advances in understanding the genetic and epigenetic alterations that characterize renal, urothelial and prostate cancers have shed light on the molecular heterogeneity of these tumors. This parallels with the growing evidence on the role of metabolic alterations in the mechanisms of tumor initiation, metastatization and primary or acquired drug resistance.

The improvement on the biological basis of these diseases have provided new opportunities to enhance the diagnostic approach to urogenital cancers. In a long-term perspective, the introduction of non-invasive tests in different biological fluids, from blood to urine and saliva, will give an essential contribution to supervise rel-time tumor dynamics in both early and advanced stages. Among emerging tests, the study of extracellular vesicles and exosomes has reported promising results and constitutes an evolving source of biomarkers for early detecting cancer and monitoring tumor response to therapies.

In the era of molecularly targeted approaches, manipulating tumor microenvironment is emerging as a key strategy in cancer research. Agents directed towards hypoxia-related or energy/nutrient sensing targets have been demonstrating their efficacy in a series of tumors and will probably enrich the future therapeutic armamentarium of genitourinary tumors. The possibility of handling tumor microenvironments requires also a deep comprehension of the activities of immune cells within this context. Although we have learned progressively that immune editing represents a crucial step in the early stages of tumor development, the progresses reported in the last 15 years have led to the development of novel immunotherapeutic agents that have been imposing as the new standard of care in a variety of tumors, including renal and urothelial cancers. The identification of the best therapeutic setting (adjuvant, neoadjuvant or advanced) and the molecular rational of sequencing or combining immunotherapies with targeted agents, chemotherapy or local interventions is a hot topic in oncology and will constitute the focus of the majority of future clinical trials in urogenital tumors.

This book has been assembled to provide the state of the art about current and future diagnostic and therapeutic scenarios in urogenital tumors and represents an outstanding piece of work, being composed of articles by key opinion leaders in this field.



**Matteo Santoni, MD**  
Oncology Unit, Macerata Hospital,  
Macerata, Italy