
Preface

Prostate cancer is the second leading cancer in men in Western society. A major concern, and an area of intensive research, involves understanding why certain prostate cancers remain localized or indolent, whereas others become aggressive and metastasize. The differences between these cancer types have profound implications for patients and physicians. Indolent disease, which grows very slowly, generally does not cause any problems to the patient, whereas aggressive disease requires immediate treatment, the earlier the better. At present, there are no markers that discriminate between these two entities, thus causing a dilemma for the management of patients who have recently been diagnosed. The aim of *Prostate Cancer Methods and Protocols* is to explore cutting-edge molecular methods that may have the potential to reveal markers of disease for use in more accurate diagnoses of prostate cancer and, consequently, to lead to new treatment strategies. This book provides a comprehensive collection of both in vitro and in vivo step-by-step protocols currently used by leaders in prostate cancer research, advice on approaches that can be used in the study of prostate cancer, as well as reviews covering areas less amenable to laboratory research, such as environmental factors in prostate cancer, to provide the reader with an overview of the prostate cancer research field as it currently stands.

Prostate Cancer Methods and Protocols is divided into sections covering in vitro techniques for the study of normal prostate epithelial cells and stem cells, their immortalization and growth in three-dimensional culture as spheroids, as well as in traditional monolayer culture, and in vivo models of prostate cancer for study, including new transgenic lines, and models for studying the mechanisms by which prostate cancer cells metastasize to the bone. One section covers new methods for accurate diagnosis of prostate cancer, including histological assessment, studies of cells in semen, and methylation analysis of the GSTpi (the pi isozyme of glutathione-S-transferase), a potential prostate cancer-specific marker. Another section examines extensive molecular, biological, and biochemical approaches—such as studies of enzymes secreted by prostate cancer cells, some of which may be cancer-specific—and changes in the androgen receptor in cancer that can influence

the outcome of hormonal treatments, as well as proteome and microarray analyses. The final section addresses new strategies for the treatment of refractory disease, including the possible role of flavonoids, targeted alpha therapy, methods for implementing immune therapy, and prostate-specific gene therapy.

Prostate Cancer Methods and Protocols provides helpful tools for all scientists engaged in prostate cancer research, students needing the basis of protocols and reviews, and clinicians wanting to know the latest methods in use for diagnosing, studying, and treating prostate cancer.

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