
Preface

Diverse molecular, cellular, and environmental events must all come together to allow the successful formation of secondary cancers, metastases. The vast amount of knowledge that has been amassed in relation to the biology underlying cancer formation is being applied to enable a better understanding of the metastatic process. It is well accepted that elucidation of the key events in this process will lead to the next generation of laboratory tests for early-diagnosis of metastases and for the treatment of occult as well as more clinically advanced disease.

This second edition of *Metastasis Research Protocols* brings together updated versions of the seminal techniques that were presented in the first edition and also includes new techniques that have recently been shown to be important in illuminating the processes underlying this important area of biology.

The first volume: *Analysis of Cells and Tissues* takes the reader through key cellular and molecular techniques relevant to the exploration of cancer cells and tissues, the focus is on the tools that have been shown to be helpful in unravelling the molecular processes important in cancer metastasis. The second volume: *Models of Metastasis* is concerned with the interaction between cancer cells and host/environment. This volume focuses on the diverse range of in vitro and in vivo models of metastasis.

In keeping with the first edition, volume one includes techniques such as immunochemistry (Chaps. 1–4), PCR (Chap. 5), and SDS-PAGE (Chap. 6), the mainstay of many laboratories. As before, we make aim for each of the techniques to stand-alone and for these to be valuable to the newcomer as well as the experienced researcher. Volume one has been extended to include newer techniques, for example, affinity measurement of biomolecular interactions (Chap. 11), methylation analysis of microRNA (Chap. 15), and RNAi technology (Chap. 16). Similarly, volume two retains chapters that describe in detail the methods often used to assess cancer cell adhesion to extracellular matrix components and endothelial cells (Chaps. 1–5), syngeneic and xenograft models of metastasis (Chaps. 9, 10, 16, and 17). In addition, updated methods are presented, for example, for the production of in vivo double-knock out models (Chap. 14) and the application of fluorescent imaging techniques for monitoring the development of metastases in vivo (Chaps. 11 and 12).

We have sought to keep the important key methods in both volumes and to introduce new methods which are making an impact in the area of metastasis research. One of the much-loved aspects of the *Methods in Molecular Biology* series is that it aims to impart knowledge of complex methodology to the end-user in an accessible manner. The “Notes” section found at the end of each chapter serves to demystify the techniques in a handy “hints and tips” format, this enables researchers who may be hesitant to adopt a new procedure to try it out, thereby adding to their repertoire of laboratory techniques. We have tried to maintain this key element in the chapters presented in these two volumes and we hope that you find this to be a continued useful aspect of this series.

Finally, we would like to thank all our contributors who have worked tirelessly to master their techniques, for sharing these with us and you, the reader. We hope you find that in these two volumes, methods that will assist in helping you to make new observations that may in turn lead to the development of new treatments aimed at combating cancer metastasis.

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