Preface

Immunotherapy for the treatment of cancer has been a long-standing, continuously evolving strategy. The emergence of new therapeutic molecules, increased knowledge of gene regulation and protein interactions, and the development of novel technologies have maintained this therapeutic approach at the forefront of cancer treatment. The numerous results and observations obtained from clinical trials have allowed a greater understanding of the in vivo mechanisms and pathways involved in the anti-tumoral response; and therefore, have also provided for the improvement of cancer immunotherapy.

The idea of using immunotherapy to eradicate cancer emerged in the 19th century when Dr. William Coley discovered the effect of bacteria on tumor regression. A few years later, Drs. Richet and Héricourt injected patients with “antitumor-serum” generated in animals to provide them with antibodies directed against tumor associated proteins, a technique called passive immunotherapy. Early on, the BCG vaccine was also used to stimulate the immune system (active immunotherapy) and eradicate cancer. More recently, cancer immunotherapy has included the use of immune cells infused during bone marrow transplant (adoptive immunotherapy), antibodies, and cytokines. It has since been associated with a combination of various other approaches, e.g. cell and gene therapy. Stem cell-based therapies, tissue engineering, and targeting have also contributed to the latest successes in pre-clinical immunotherapy studies.

A large array of techniques is required for the implementation of these continuously developing immunotherapeutic approaches. It is therefore very important that scientists have access to the latest protocols of various techniques. This Immunotherapy of Cancer volume of the Methods in Molecular Biology book series describes detailed procedures for trainees and experts in the area of basic, clinical science who wish to undertake their own new immunotherapy studies. In addition to the protocols, general overviews provide useful updates in each area, as well as summaries of recent pre-clinical and clinical trials.

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