Preface

Over the last decade, the advances in cellular and molecular immunology have been tremendous. Our continuously improving understanding of the immune system and the appreciation of the mechanisms by which tumors and viral or bacterial infections are controlled have led to promising new treatment strategies. Adoptive transfer of tailored antigen-specific immune cells and/or optimally designed immunological effector molecules is an elegant and promising approach to the establishment or restoration of protective immune responses. At this point, it appears timely to publish the present volume on *Adoptive Immunotherapy* for the *Methods in Molecular Medicine*™ series.

Experts from various fields contributed to this comprehensive collection of state-of-the-art methods for adoptive immunotherapy. Recent technical advances and specific methods from the areas of dendritic cell therapy, generation of antigen-specific cytotoxic T cells, and antitumor treatment with specific antibodies have been compiled. Particular emphasis is placed on preclinical and clinical applications. These chapters are complemented by articles describing the progress of selected approaches in clinical trials. Leading experts in the field provide theoretical overviews and point out future directions for the improvement of adoptive immunotherapy. Additional chapters on the molecular definition of target antigens, mathematical modeling approaches to immunotherapy, and the utilization of regulatory T cells complete the volume. We were fortunate to receive support from leading scientists from all over the world who contributed their most recent experimental protocols and shared their practical advice. Special emphasis was placed on the "Notes" section to include helpful troubleshooting advice for daily work at the lab bench, which is a unique feature of the *Methods in Molecular Medicine*™ series. It is our hope that we have achieved our main objective to provide helpful information for scientists just entering the field of adoptive immunotherapy. Furthermore, this volume attempts to encourage more experienced researchers to try novel experimental approaches.

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Burkhard Ludewig
Matthias Hoffmann