

# CONTENTS

---

Acknowledgments .....	v
Preface .....	vii
Contributors .....	xiii
Value-Added eBook/PDA .....	xvii

## **PART I: BASIC SCIENCE OF TUMOR ANTIGENS AND IMMUNE ACTIVATION**

<b>1</b> Biology of the Cancer Vaccine Immune Response .....	<b>3</b>
<i>Michael A. Morse, Timothy M. Clay, and H. Kim Lyerly</i>	
<b>2</b> The Rational Design of T-Cell Epitopes With Enhanced Immunogenicity .....	<b>11</b>
<i>John Fikes</i>	
<b>3</b> Identification of Tumor Antigens Using Subtraction and Microarrays .....	<b>19</b>
<i>Jiangchun Xu</i>	
<b>4</b> Tumor Antigen Discovery With T Cells .....	<b>31</b>
<i>Paul F. Robbins</i>	
<b>5</b> Targeting Viral Antigens for the Treatment of Malignancies .....	<b>49</b>
<i>Gretchen L. Eiben, Diane M. Da Silva, Steven C. Fausch, Amanda M. Krier, I. Caroline Le Poole, Megan E. Papineau, Michael I. Nishimura, and W. Martin Kast</i>	
<b>6</b> Immune Defects in Cancer .....	<b>65</b>
<i>Dmitry Gabilovich and Vladimir Pisarev</i>	
<b>7</b> Escape of Tumors From the Immune System: <i>Role of the Transforming Growth Factor-<math>\beta</math>-Signaling Pathway</i> .....	<b>85</b>
<i>Gerard C. Blobe</i>	

## **PART II: GENERAL VACCINE AND IMMUNOTHERAPY STRATEGIES**

<b>8</b> Immune Adjuvants .....	<b>99</b>
<i>Jory R. Baldrige, Susan Hand Zimmermann, and Sally P. Mossman</i>	
<b>9</b> Heterologous Prime-Boost Vaccination in Tumor Immunotherapy .....	<b>115</b>
<i>Michael J. Palmowski and Caroline Smith</i>	
<b>10</b> Peptide-Based Vaccines .....	<b>121</b>
<i>Carmen M. Berger, Keith L. Knutson, Lupe G. Salazar, Kathy Schiffman, and Mary L. Disis</i>	
<b>11</b> Antibody-Inducing Cancer Vaccines Against Cell-Surface Carbohydrate Antigens .....	<b>137</b>
<i>Govind Ragupathi, John Gathuru, and Philip O. Livingston</i>	
<b>12</b> Anti-Idiotypic Vaccines .....	<b>157</b>
<i>Sunil K. Chatterjee, Malaya Bhattacharya-Chatterjee, and Kenneth A. Foon</i>	

13	Pox Viral Vaccines .....	175
	<i>James L. Gulley, Philip M. Arlen, and Jeffrey Schlom</i>	
14	Utility of Adenovirus-Based Vectors for Multiple Cancer Vaccine Approaches .....	193
	<i>Zachary Hartman and Andrea Amalfitano</i>	
15	Alphaviral-Based Strategies for the Immunotherapy of Cancer .....	203
	<i>Edward L. Nelson and Jonathan Smith</i>	
16	DNA Vaccines .....	225
	<i>Michael Bereta and Howard L. Kaufman</i>	
17	Whole-Cell Vaccines .....	249
	<i>Timothy M. Clay, Paul J. Mosca, H. Kim Lyerly, and Michael A. Morse</i>	
18	Gene-Modified Tumor-Cell Vaccines .....	253
	<i>Leisha A. Emens and Elizabeth M. Jaffee</i>	
19	Hapten-Modified Tumor Vaccines .....	275
	<i>David Berd</i>	
20	Chaperone Proteins/Heat Shock Proteins As Anticancer Vaccines .....	297
	<i>Michael W. Graner and Emmanuel Katsanis</i>	
21	Dendritic Cell Vaccines .....	317
	<i>Madhav V. Dhodapkar</i>	
22	Exosomes for Immunotherapy of Cancer .....	331
	<i>Nathalie Chaput, N. E. C. Schartz, Fabrice Andre, and Laurence Zitvogel</i>	
23	Immunocytokines for Cancer Immunotherapy .....	341
	<i>Paul M. Sondel and Steven D. Gillies</i>	
24	T-Cell Adoptive Immunotherapy .....	359
	<i>Gregory E. Plautz, Peter A. Cohen, David E. Weng, and Suyu Shu</i>	
<b>PART III: TUMOR-SPECIFIC VACCINE DEVELOPMENT</b>		
25	Melanoma Vaccines .....	379
	<i>Jeffrey Weber</i>	
26	Allogenic Melanoma Lysate Vaccines .....	397
	<i>Malcolm S. Mitchell</i>	
27	Renal Cancer Vaccines .....	415
	<i>Hyung L. Kim, Barbara J. Gitlitz, and Robert A. Figlin</i>	
28	Vaccines for Hematological Malignancies .....	425
	<i>Qing Yi</i>	
29	Vaccines for the Immunotherapy of Prostate Cancer .....	451
	<i>Boris Minev and Michael L. Salgaller</i>	
30	Vaccine Therapy for Breast and Ovarian Cancers .....	465
	<i>Susan E. Smith and Alison T. Stopeck</i>	
31	Vaccine Therapy for Gastrointestinal Cancers .....	491
	<i>John L. Marshall</i>	

---

32	Vaccines for Lung Cancer .....	505
	<i>Michael A. Morse, Jennifer Garst, and Eric Toloza</i>	
33	Vaccines for Other Tumors .....	513
	<i>Michael A. Morse</i>	
<b>PART IV: CLINICAL TRIALS AND IMMUNE ANALYSES</b>		
34	Clinical Trial Designs for Therapeutic Vaccine Studies .....	519
	<i>Richard Simon</i>	
35	Analysis of Cellular Immune Responses in Cancer Vaccine Trials .....	527
	<i>Timothy M. Clay, Michael A. Morse, Paul J. Mosca, Amy Hobeika, Donna Niedzwiecki, and H. Kim Lyerly</i>	
36	Analysis of Humoral Immune Responses in Vaccine Trials .....	543
	<i>Rajasekharan Somasundaram, Tianqian Zhang, and Dorothee Herlyn</i>	
37	Regulatory Issues Affecting Tumor Vaccines .....	563
	<i>Mark O. Thornton, Alexandra S. Worobec, Keith Wonnacott, and Raj K. Puri</i>	
	Index .....	577