

---

# Contents

Preface .....	v
Contributors .....	xi
PART I. EXPERIMENTAL APPROACHES TO CANCER GENE THERAPY	
A: <i>Immunotherapy/Tumor Vaccination</i>	
1 Immunizing Potential of Cytokine-Transduced Tumor Cells <b>Mario P. Colombo and Monica Rodolfo</b> .....	3
2 Particle-Mediated Gene Transfer into Dendritic Cells: A Novel Strategy for the Induction of Immune Responses against Tumor Antigens <b>Thomas Tüting and Andreas Albers</b> .....	27
3 Cancer Gene Therapy with Heat Shock Protein-65 Gene <b>Katalin V. Lukacs and Artit Nakakes</b> .....	49
4 Recombinant Vaccinia Virus MVA for Generation and Analysis of T Cell Responses Against Tumor Associated Antigens <b>Ingo Drexler, Karl Heller, Marion Ohlmann, Volker Erfle, and Gerd Sutter</b> .....	57
B: <i>Suicide Gene Therapy</i>	
5 Selection of Cytochrome <i>P450</i> Genes for Use in Prodrug Activation-Based Cancer Gene Therapy <b>Jodi E. D. Hecht and David J. Waxman</b> .....	77
6 Construction of <i>P450</i> -Expressing Tumor Cell Lines Using Retroviruses <b>Jodi E. D. Hecht, Youssef Jounaidi, and David J. Waxman</b> .....	85
7 In Vitro Methods for Evaluation of <i>P450</i> -Based Anticancer Gene Therapy <b>Jodi E. D. Hecht and David J. Waxman</b> .....	95
8 Tumor Models for Evaluation of <i>P450</i> Gene Therapy In Vivo <b>Jodi E. D. Hecht, Pamela Schreiber Schwartz, and David J. Waxman</b> .....	107

C: *Anti-Oncogene and Suppressor Gene Therapy*

- 9 Intracellular Single-Chain Antibodies for Gene Therapy  
**Guadalupe Bilbao, Jesus Gomez-Navarro, Keizo Kazano,  
Juan Luis Contreras, and David T. Curiel** ..... 121
- 10 Combined Adenoviral Transfer of Tumor Suppressor  
and Cell-Cycle Genes for Tumor-Cell Apoptosis  
**Karsten Brand, Volker Sandig, and Michael Strauss**..... 151

D: *Antisense Gene Therapy*

- 11 Inhibition of Cell Growth by Antisense Oligonucleotides  
Targeting the Growth-Related Protein Kinase c-raf  
**Doriano Fabbro, B. P. Monia, K.-H. Altmann,  
and Thomas Geiger** ..... 167
- 12 IGF-1 Antisense Strategies for Cancer Treatment  
**Yue Xin Pan and Donald D. Anthony** ..... 189

E: *Ribozyme Gene Therapy*

- 13 Anti-MDR1 Ribozyme Gene Therapy  
**Takao Ohnuma, Hiroyuki Kobayashi, and Fu-Sheng Wang**..... 207
- 14 Anti-c-erbB2 Ribozyme for Gene Therapy of Breast Cancer  
**Toshiya Suzuki, Masami Bessho, and Kevin J. Scanlon** ..... 247
- 15 Anti-K-ras Ribozyme Adenoviral Vector for Gene Therapy  
of Non-Small Cell Lung Cancer  
**Yu-An Zhang, John Nemunaitis, and Alex W. Tong**..... 261

F: *Delivery Systems and Tumor Targeting*

- 16 Green Fluorescent Protein Retroviral Vector: *Generation  
of High-Titer Producer Cells and Virus Supernatant*  
**Wolfgang Uckert, Lene Pedersen, and Walter Günzburg** ..... 275
- 17 HSV-1 Vectors for Gene Therapy of Experimental CNS Tumors  
**Ulrich Herrlinger, Andreas Jacobs, Manish Aghi,  
Deborah E. Schuback, and Xandra O. Breakefield** ..... 287
- 18 Intratumoral Injection of Naked DNA  
**Jingping Yang** ..... 313
- 19 Cationic Liposome Gene Transfer  
**Kyonghee Kay Son** ..... 323
- 20 In Vivo Particle-Mediated Gene Transfer for Cancer Therapy  
**Alexander L. Rakhmievich and Ning-Sun Yang** ..... 331

21	Gene Targeting to Hepatomas (AFP) <b>Shotaro Tsuruta, Akio Ido, and Shigenobu Nagataki</b> .....	345
22	Adenovirus-Mediated Targeted Gene Therapy for Breast Cancer and for Purging Hematopoietic Stem-Cell Sources <b>Ling Chen</b> .....	361
23	Chemotherapy-Inducible Vector for Gene Therapy of Cancer <b>Wolfgang Walther, Ulrike Stein, Robert H. Shoemaker, and Peter M. Schlag</b> .....	371
G: <i>Alternative Approaches in Cancer Gene Therapy</i>		
24	Oncolytic Adenoviral Vectors <b>Ramon Alemany and Wei-Wei Zhang</b> .....	395
25	Genetically Modified Clostridium for Gene Therapy of Tumors <b>Mary E. Fox, Marilyn J. Lemmon, Amato J. Giaccia, Nigel P. Minton, and J. Martin Brown</b> .....	413
26	Tumor-Targeted <i>Salmonella</i> : Strain Development and Expression of the HSV-tK Effector Gene <b>David Bermudes, Brooks Low, and John M. Pawelek</b> .....	419
Part II. Clinical Protocols for Cancer Gene Therapy		
A: <i>Immunotherapy/Tumor Vaccination</i>		
27	Ex Vivo Cytokine Gene Transfer in Melanomas by Using Particle Bombardment <b>Dirk Schadendorf</b> .....	439
28	Intratumoral Gene Transfer of the <i>HLA-B7</i> Gene Into Colon Carcinoma Metastases <b>Evanthia Galanis and Joseph Rubin</b> .....	453
29	Hybrid Cell Vaccination in Patients with Metastatic Melanoma <b>Uwe Trefzer, Guido Weingart, Wolfram Sterry, and Pete Walden</b> .....	469
B: <i>Suicide Gene Therapy</i>		
30	Retroviral Transfer of the Herpes Simplex Virus-Thymidine Kinase (HSV-tK) Gene for the Treatment of Cancer <b>Rajagopal Ramesh, Anupama Munshi, Aizen J. Marrogi, and Scott M. Freeman</b> .....	479
31	Gene Therapy for Treatment of Brain Tumors (HSV-tK In Vivo Gene Transfer): A Case Study <b>Friedrich Weber, Frank Floeth, and Hans Bojar</b> .....	499

32	Gene Therapy of Glioblastoma Multiforme with a Bicistronic Retroviral Vector Expressing Human IL-2 and HSV-tk <b>Giorgio Palù, Massimo Pizzato, Roberta Bonaguro, and Frederico Colombo</b> .....	511
33	Intratumoral Gene Transfer of the Cytosine Deaminase Gene for the Treatment of Breast Cancer <b>Hardev S. Pandha and Nicholas R. Lemoine</b> .....	523
C: <i>Anti-Oncogene and Suppressor Gene Therapy</i>		
34	Adenovirus-Mediated Wild-Type p53 Gene Transfer into Head and Neck Cancers <b>Gary L. Clayman, Douglas K. Frank, and Patricia A. Bruso</b> .....	537
35	Direct DNA Injection (p53) into HCC Tumors <b>Ragai R. Mitry and Nagy A. Habib</b> .....	545
36	A Phase II Trial of Intratumoral Injection with Selectively Replicating Adenovirus (ONYX-015) in Patients with Recurrent, Refractory Squamous Cell Carcinoma of the Head and Neck <b>David H. Kirt</b> .....	559
D: <i>Antisense Gene Therapy</i>		
37	c-myc Antisense Oligonucleotide Therapeutics for Hematologic Malignancies <b>Selina Luger</b> .....	577
38	Ovarian Cancer Gene Therapy with BRCA1— An Overview <b>Patrice S. Obermiller and Jeffrey T. Holt</b> .....	593
39	Methods for Chemoprotection and Chemosensitization: MDR-1 For Chemoprotection Using Retroviruses to Modify Hematopoietic Cells and Cytosine Deaminase for Chemosensitization Using Adenoviral Vectors to Modify Epithelial Neoplastic Cells <b>Shrinavassan Shrimdkandada, Si Qing Fu, Lian Hua Yin, Xiang Yang David Guo, Thong Nanakorn, Xue Yan Peng, Don Dizon, Debbie Lin, Matthew Cooperberg, Jong Ho Won, and Albert Deisseroth</b> .....	609
	Index .....	617



<http://www.springer.com/978-0-89603-714-4>

Gene Therapy of Cancer  
Methods and Protocols  
Walther, W.; Stein, U. (Eds.)  
2000, XVI, 645 p., Hardcover  
ISBN: 978-0-89603-714-4  
A product of Humana Press