Includes bibliographical references and index.
QZ 266 C321434 1999
RC271.G45 C36 1999
616.99'4042--dc21
99-044529

ISSN 0065-2598
233 Spring Street, New York, New York 10013
http://www.kap.nl
10  9  8  7  6  5  4  3  2  1
A C.I.P. record for this book is available from the Library of Congress
All rights reserved
No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any
means, electronic, mechanical, photocopying, microfilming, recording, or otherwise, without written permission
from the Publisher
Printed in the United States of America
CONTENTS

I. The Clinical Problem

1. Management Problems in Oncology ....................................... 3
   Susan J. Cleator and Pat Price

II. Vectors

2. Adenoviral Vectors ............................................................ 13
   Prem Seth

3. Retrovirus Vectors .............................................................. 23
   Yasuhiro Takeuchi and Massimo Pizzato

4. Targetable Gene Delivery Vectors .......................................... 37
   Paul L. Hallenbeck and Susan C. Stevenson

5. Human α-fetoprotein Transcriptional Regulatory Sequences:
   Application to Gene Therapy .............................................. 47
   Taiki Tamaoki

6. Tumor-Targeted Salmonella: Highly Selective Delivery Vectors ........ 57
   David Bermudes, Brooks Low, and John Pawelek

7. Mutant Adenoviruses Selectively Replication-Competent in Tumor Cells . 65
   Makoto Sunamura

8. Polyoma and Papilloma Virus Vectors for Cancer Gene Therapy ........ 73
   Nina Krauzewicz and Beverly E. Griffin

9. Cochleates: Lipid-Based Vehicles for Gene Delivery—Concept,
   Achievements and Future Development ................................... 83
   Leila Zarif and Raphael J. Mannino

10. The Use of Skeletal Muscle to Express Genes for the Treatment of
    Cancer ............................................................................... 95
    Stephen Coe, Michael Harron, Marc Winslet, and Geoffrey Goldspink
III. Cell Cycle Control

11. Adhesion Molecules in Cancer Biology .............................................. 115
   Yaw Ohene-Abuakwa and Massimo Pignatelli

12. Cell Cycle Control ............................................................... 127
   Vivien J. Tannoch, Phil W. Hinds and Li-Huei Tsai

IV. Apoptosis

13. Killer/DR5, A Novel DNA-Damage Inducible Death Receptor Gene, Links the p53-Tumor Suppressor to Caspase Activation and Apoptotic Death .................................................. 143
   Gen Sheng Wu, Kunghong Kim, and Wafik S. El-Deiry

14. Apoptin* .......................................................... 153
   Alexandra Pietersen and Mathieu H. M. Noteborn

15. Adenovirus-Mediated Herpes Simplex Thymidine Kinase Gene Therapy For Brain Tumors ................................................................. 163
   Anu-Maaria Sandmair, Matti Vapalahti, and Seppo Ylä-Herttuala

   M-C. Hung, G. N. Hortobagyi, and N. T. Ueno

V. Tumour Suppressor Genes

17. Pre-clinical Studies with Tumor Suppressor Genes .......................... 183
    Prem Seth

18. Gene Therapy for Liver Tumors .................................................. 193
    Ragai R. Mitry, Marc R. Mansour, Roman Havlík, and Nagy A. Habib

    Junzo Kigawa and Naoki Terakawa

VI. Other Systems

20. Eliciting Hyperacute Rejection as a Tumor Killing Strategy: Herpes Amplicon Vector Transfer of the α(1,3)Galactosyltransferase Gene . . . 217
    Charles J. Link Jr., Daniel J. Hellrung, Tatiana Seregina, 
    and Suming Wang
21. Innate Immune Therapy for Cancer: Screen for Molecules molecules of Activating the Innate Immune System ........................................ 229
Tsukasa Seya, Nasim A. Begum, Midori Nomura, Shoutaro Tsuji, Misako Matsumoto, Akira Hayashi, Ichiro Azuma, and Kumow Toyoshima

22. Mda-7: A Novel Melanoma Differentiation Associated Gene with Promise for Cancer Gene Therapy ........................................ 239

VII. Antisense and Ribozymes

23. Antisense IGF and Antisense IGF-IR Therapy of Malignancy .............. 265
Hao Wang, Yanjun Liu, Lixin Wei, and Yajun Guo

24. Sensitization of Tumors to Chemotherapy Through Gene Therapy .......... 273
Ruth A. Gjerset and Dan Mercola

James S. Norris, Brian Hoel, Dale Voeks, Frideriki Maggouta, Michael Dahm, Weihua Pan, and Gary Clawson

26. Ribozymes: Their Design and Use in Cancer .................................... 303
Philip C. Turner

27. The Approach of Triple Helix Formation in Control of Gene Expression and the Treatment of Tumors Expressing IGF-I ..................... 319
Lia C. Upegui-Gonzalez, Jean-Christophe François, Adama Ly, and Jerzy Trojan

VIII. Immuno-Modulation

28. Dendritic Cell-based Immunization for Cancer Therapy ..................... 335
Michael A. Morse and H. Kim Lyerly

29. Hybrid Cell Vaccination for Cancer Immunotherapy .......................... 347
Peter Walden

30. Modulation of the Immune Response Through 4-1BB .......................... 355
Gabriel Sica and Lieping Chen

31. Heat Shock Proteins in Cancer Therapy ......................................... 363
Katalin V. Lukacs, Olivier E. Pardo, M. Jo Colston, Duncan M. Geddes, and Eric WFW Alton
32. Bi-Specific Antibodies in Cancer Therapy ............................................. 369
    Hao Wang, Yanjun Liu, Lixin Wei, and Yajun Guo

33. B7.1 and Cytokines: Synergy in Cancer Gene Therapy .......................... 381
    Marcel Kuiper, Raquel Sanches, Yves-Jean Bignon, and Farzin Farzaneh

34. Intralesional Vaccinia/GM-CSF Recombinant Virus in the Treatment of Metastatic Melanoma .......................................................... 391
    Michael J. Mastrangelo, Henry C. Maguire Jr., Edmund C. Lattime

IX. Suicidal Genes

35. Approaches to Gene-Directed Enzyme Prodrug Therapy (GDEPT) ............ 403
    Caroline J. Springer and Ion Niculescu-Duvaž

36. Suicide Gene Therapy ............................................................................ 411
    Scott M. Freeman

37. Adenoviruses as Gene Delivery Vectors .............................................. 423
    Anu-Maaria Sandmair, Matti Vapalahti, and Seppo Ylä-Herttuala

X. Angiogenesis Control

38. Evaluation of an Inhibitor of DNA Methylation, 5-aza-2′-deoxycytidine, for the Treatment of Lung Cancer and the Future Role of Gene Therapy .......................................................... 433
    Richard L. Momparler, Nicoletta Eliopoulos, and Joseph Ayoub

39. Vascular Endothelial Growth Factor as a Target for Cancer Gene Therapy .................................................................................. 447
    Josephine Tuong Nguyen

40. Adeno-Associated Virus and Other Potential Vectors for Angiostatin and Endostatin Gene Therapy ......................................................... 457
    Josephine Tuong Nguyen

XI. Matrix Metallo Proteinase

41. Potential Applications of Tissue Inhibitor of Metalloproteinase (TIMP) Overexpression for Cancer Gene Therapy ........................................... 469
    Andrew H. Baker, Matti Ahonen, and Veli-Matti Kähäri

Contributors ............................................................................................... 485

Index ............................................................................................................. 495