# TABLE OF CONTENTS

## Foreword
Thomas W. Kensler, Michael A. Trush, and Michael G. Simic ............................................................. 1876s

## Mechanisms of Cancer and Aging

### Recent Studies on the Metabolic Activation of Chemical Carcinogens
James A. Miller .......................................................................................................................................... 1879s

### Oncogene Activation and Tumor Suppressor Gene Inactivation during Multistage Mouse Skin Carcinogenesis
G. Tim Bowden, Brant Schneider, Rick Domann, and Molly Kulesz-Martin ............................................ 1882s

### Modulation of Oxidant Formation in Mouse Skin in Vivo by Tumor-promoting Phorbol Esters
Lawrence J. Marnett and Chuan Ji ........................................................................................................... 1886s

### Reactive Oxygen Species in Tumorigenesis
Daniel I. Feig, Thomas M. Reid, and Lawrence A. Loeb ........................................................................ 1890s

### Reactive Oxygen-dependent DNA Damage Resulting from the Oxidation of Phenolic Compounds by a Copper-Redox Cycle Mechanism
Yunbo Li and Michael A. Trush .................................................................................................................. 1895s

### Enzymatic Repair of Oxidative DNA Damage
Masahiko S. Satoh and Tomas Lindahl ...................................................................................................... 1899s

### The Pathway Regulating GADD153 Induction in Response to DNA Damage Is Independent of Protein Kinase C and Tyrosine Kinases
Jennifer D. Luethy and Nikki J. Holbrook ............................................................................................... 1902s

## Biomarkers and Susceptibility Factors

### Molecular Biomarkers for Aflatoxins and Their Application to Human Cancer Prevention
John D. Groopman, Gerald N. Wogan, Bill D. Roebuck, and Thomas W. Kensler .................................. 1907s

### Biomarkers for Human Uptake and Metabolic Activation of Tobacco-specific Nitrosamines
Stephen S. Hecht, Steven G. Cannella, Peter G. Foiles, and Sharon E. Murphy ...................................... 1912s

### DNA Markers of Oxidative Processes in Vivo: Relevance to Carcinogenesis and Anticarcinogenesis
Michael G. Simic ...................................................................................................................................... 1918s

### Radioadaptation to the Mutagenic Effect of Ionizing Radiation in Human Lymphoblasts: Molecular Analysis of Hprt Mutants
O. Rigaud and E. Moustacchi ..................................................................................................................... 1924s

### Inflammation, Chromosomal Instability, and Cancer: The Schistosomiasis Model
Miriam P. Rosin, Wagida A. Anwar, and Amanda J. Ward ...................................................................... 1929s

## Molecular Diagnostics

### Mutagenesis of the H-ras Protooncogene and the p53 Tumor Suppressor Gene
Peter Cerutti, Perwez Hussain, Charareh Pourzand, and Fernando Aguilar ........................................... 1934s

### Cancer Screening Based on Genetic Alterations in Human Tumors
Li Mao and David Sidransky ...................................................................................................................... 1939s

### Phenotypic and Genotypic Events in Gastric Carcinogenesis
Pelayo Correa and Yih-horng Shiao .......................................................................................................... 1941s

### Test Reliability Is Critically Important to Molecular Epidemiology: An Example from Studies of Human Papillomavirus Infection and Cervical Neoplasia
Mark H. Schiffman and Arthur Schatzkin .................................................................................................. 1944s

## Nutrition, Exercise, and Cancer

### Experimental Evidence for Inhibition of N-Nitroso Compound Formation as a Factor in the Negative Correlation between Vitamin C Consumption and the Incidence of Certain Cancers
Sidney S. Mirvish ...................................................................................................................................... 1948s

### Is There a Significant Role for Lipid Peroxidation in the Causation of Malignancy and for Antioxidants in Cancer Prevention?
Anthony T. Diplock, Catherine A. Rice-Evans, and Roy H. Burdon ....................................................... 1952s
MOLECULAR MECHANISMS OF CHEMOPREVENTION

Glutathione, Ascorbate, and Cellular Protection
Alton Meister .................................................. 1969s

Anticarcinogenic Activities of Organic Isothiocyanates: Chemistry and Mechanisms
Yuesheng Zhang and Paul Talalay ........................................ 1976s

Cytochrome P-450 Enzymes as Targets for Chemoprevention against Chemical Carcinogenesis and Toxicity:
Opportunities and Limitations
Chung S. Yang, Theresa J. Smith, and Jun-Yan Hong ........................................ 1982s

Suppression of Squamous Cell Carcinoma Growth and Differentiation by Retinoids
Reuben Lotan .................................................. 1987s

Suppression of Hydroperoxide-induced Cytotoxicity by Polyphenols
Tsutomu Nakayama .................................................. 1991s

Chemoprevention of Carcinogen-DNA Adducts and Chronic Degenerative Diseases
Alberto Izzotti, Francesco D’Agostini, Maria Bagnasco, Leonardo Scatolini, Alessandra Rovida,
Roumen M. Balansky, Carmelo F. Cesarone, and Silvio De Flora ........................................ 1994s

Prevention of Carcinogenesis by Protease Inhibitors
Ann R. Kennedy .................................................. 1999s

CLINICAL INTERVENTIONS

Potential Use of Nitroxides in Radiation Oncology
Stephen M. Hahn, C. Murali Krishna, Amram Samuni, William DeGraff, Daniel O. Cuscela,
Peter Johnstone, and James B. Mitchell ........................................ 2006s

Serological Markers of Cancer and Their Applications in Clinical Trials
Kathy J. Helzlsouer .................................................. 2011s

Progress in Cancer Chemoprevention: Perspectives on Agent Selection and Short-Term Clinical Intervention Trials
Gary J. Kelloff, Charles W. Boone, Vernon E. Steele, James A. Crowell, Ronald Lubet, and
Caroline C. Sigman .................................................. 2015s

Retinoid Chemoprevention Studies in Upper Aerodigestive Tract and Lung Carcinogenesis
Scott M. Lippman, Steven E. Benner, and Waun Ki Hong ........................................ 2025s

Prevention of Esophageal Cancer: The Nutrition Intervention Trials in Linxian, China
Philip R. Taylor, Bing Li, Sanford M. Dawsey, Jun-Yao Li, Chung S. Yang, Wande Guo,
William J. Blot, and the Linxian Nutrition Intervention Trials Study Group ........................................ 2029s

Prospects of Chemoprevention of Human Cancers with the Synthetic Retinoid Fenretinide
Alberto Costa, Franca Formelli, Fausto Chiesa, Andrea Decensi, Giuseppe De Palo, and
Umberto Veronesi .................................................. 2032s

The β-Carotene and Retinol Efficacy Trial (CARET) for Chemoprevention of Lung Cancer in High Risk Populations: Smokers and Asbestos-exposed Workers
Gilbert S. Omenn, Gary Goodman, Mark Thornquist, James Grizzle, Linda Rosenstock, Scott Barnhart,
John Balmes, Martin G. Cherniack, Mark R. Cullen, Andrew Glass, James Keogh, Frank Meyskens, Jr.,
Barbara Valanis, and James Williams, Jr. ........................................ 2038s

Summary of the Round Table Discussion on Strategies for Cancer Prevention: Diet, Food, Additives,
Supplements, and Drugs
Kathy J. Helzlsouer, Gladys Block, Jeffrey Blumberg, Anthony T. Diplock, Mark Levine,
Lawrence J. Marnett, Robert J. Schulpine, Joseph T. Spence, and Michael G. Simic ........................................ 2044s

List of Participants .................................................. 2052s