Contents

GUEST EDITORIAL

393 Highlighting the Science of Cancer Prevention
Elizabeth H. Blackburn

EDITORIAL COMMENTARY

394 Unprecedented Opportunities and Promise for Cancer Prevention Research
Elizabeth H. Blackburn, Thea D. Tlsty, and Scott M. Lippman

PERSPECTIVES

403 NF-κB Fans the Flames of Lung Carcinogenesis
Kwok-Kin Wong, Tyler Jacks, and Glenn Dranoff
See article p. 424

406 The Ultimate in Cancer Chemoprevention: Cancer Vaccines
Mary L. Disis
See article p. 438

410 Vaccine Prevention of Cancer: Can Endogenous Antigens Be Targeted?
Louis M. Weiner, Rishi Surana, and Joseph Murray
See article p. 438

416 Interphase Cytogenetics of Sputum Cells for the Early Detection of Lung Carcinogenesis
Sheila A. Prindiville and Thomas Ried
See article p. 447

420 Lung Cancer Biomarkers: FISHing in the Sputum for Risk Assessment and Early Detection
Brigitte N. Gompers, Avmum Spira, David E. Elashoff, and Steven M. Dubinett
See article p. 447

RESEARCH ARTICLES

424 Knockout of the Tumor Suppressor Gene Gprc5a in Mice Leads to NF-κB Activation in Airway Epithelium and Promotes Lung Inflammation and Tumorigenesis
Jiong Deng, Junya Fujimoto, Xiao-Feng Ye, Tao-Yan Men, Carolyn S. Van Pelt, Yu-Long Chen, Xiao-Feng Lin, Humam Kadara, Qingguo Tao, Dafna Lotan, and Reuben Lotan
See perspective p. 403

438 Vaccine against MUC1 Antigen Expressed in Inflammatory Bowel Disease and Cancer Lessens Colonic Inflammation and Prevents Progression to Colitis-Associated Colon Cancer
Pamela L. Beatty, Sowmya Narayanan, Jean Cariépy, Sarangarajan Ranganathan, and Olivia J. Finn
See perspectives pp. 406 and 410

447 The Detection of Chromosomal Aneusomy by Fluorescence In Situ Hybridization in Sputum Predicts Lung Cancer Incidence
Marileila Varella-Garcia, Aline P. Schulte, Holly J. Wolf, William J. Feser, Chan Zeng, Sarah Braudrick, Xiang Yin, Fred R. Hirsch, Timothy C. Kennedy, Robert L. Keith, Anna E. Barón, Steven A. Belinsky, York E. Miller, Tim Byers, and Wilbur A. Franklin
See perspectives pp. 416 and 420

454 5-Deoxykaempferol Plays a Potential Therapeutic Role by Targeting Multiple Signaling Pathways in Skin Cancer
Kyung Mi Lee, Ki Won Lee, Sanguine Byun, Sung Keun Jung, Sang Kwon Seo, Yong-Seek Heo, Ann M. Bode, Hyong Joo Lee, and Zigang Dong

466 Weight Loss via Exercise with Controlled Dietary Intake May Affect Phospholipid Profile for Cancer Prevention in Murine Skin Tissues
Fing Ouyang, Yu Jiang, Hieu M. Doan, Linglin Xie, David Vasquez, Ruth Welti, Xiaoyu Su, Nanyan Lu, Betty Herndon, Shie-Shien Yang, Richard Jeannotte, and Weiqun Wang
Serum Oxidized Protein and Prostate Cancer Risk within the Prostate Cancer Prevention Trial
Ashraful Hoque, Christine B. Ambrosone, Cathie Till, Phyllis J. Goodman, Cathy Tangen, Alan Kristal, Scott Lucia, Qiao Wang, Maya Kappil, Ian Thompson, Ann W. Hsing, Howard Parnes, and Regina M. Santella

Sulforaphane Inhibits Constitutive and Interleukin-6–Induced Activation of Signal Transducer and Activator of Transcription 3 in Prostate Cancer Cells
Eun-Ryeong Hahm and Shivendra V. Singh

STAT2 Contributes to Promotion of Colorectal and Skin Carcinogenesis
Ana M. Gamero, Matthew R. Young, Royce Lynn Mentor-Marcel, Gerd Bobe, Anthony J. Scardello, Jennifer Wise, and Nancy H. Colomb

Energy Balance, the PI3K-AKT-mTOR Pathway Genes, and the Risk of Bladder Cancer

Nano-Bio-Chip Sensor Platform for Examination of Oral Exfoliative Cytology
Shannon E. Weigum, Pierre N. Floriano, Spencer W. Redding, Chih-Ko Yeh, Stephen D. Westbrook, H. Stan McGuff, Alan Lin, Frank R. Miller, Fred Villarreal, Stephanie D. Rowan, Nadarajah Vigneswaran, Michelle D. Williams, and John T. McDevitt

Fiberoptic Resonance Raman Spectroscopy to Measure Carotenoid Oxidative Breakdown in Live Tissues
Brandon G. Bentz, Jason Diaz, Terry A. Ring, Mark Wade, Konrad Kennington, David M. Burnett, Robert McClane, and Frank A. Fitzpatrick

The Core Circadian Gene Cryptochrome 2 Influences Breast Cancer Risk, Possibly by Mediating Hormone Signaling
Aaron E. Hoffman, Tongzhang Zheng, Chun-Hui Yi, Richard G. Stevens, Yue Ba, Yawei Zhang, Derek Leaderer, Theodore Holford, Johnni Hansen, and Yong Zhu

Resveratrol Suppresses Colitis and Colon Cancer Associated with Colitis
Xiangli Cui, Yu Jin, Anne B. Hofseth, Edsel Pena, Joshua Habiger, Alexander Chumanevich, Deepak Poudyal, Mitzi Nagarkatti, Prakash S. Nagarkatti, Uday P. Singh, and Lorne J. Hofseth

Sulindac Metabolites Induce Proteosomal and Lysosomal Degradation of the Epidermal Growth Factor Receptor
Heather A. Pangburn, Dennis J. Ahnen, and Pamela L. Rice
ABOUT THE COVER

Cultured melanoma cells were treated with colcemid to arrest growth at metaphase, made to swell with a hypotonic solution, fixed with methanol/acetic acid, and dropped on microscope slides to burst them and spread the chromosomes (blue) tipped by telomeres (red) shown in the center area of the cover image (approximately 3000× magnification; courtesy of Brad Stohr and Elizabeth Blackburn). Several nuclei did not burst during slide preparation (also displaying blue chromosomal DNA and red telomeres) and appear adjacent to the spread chromosomes. Chromosomal DNA was stained with 4’,6-diamidino-2-phenylindole (DAPI), and telomeres were marked via a fluorescently labeled peptide nucleic-acid probe specific for telomeric DNA repeats. Telomere maintenance (and thus genomic instability) is sustained by the enzyme telomerase in normal cells. Short telomeres are associated with major cancer risk factors including smoking, inflammation, and obesity. Recently, chronic psychological stress, a risk factor for cancer in animal models, also has been shown to take its toll on telomere maintenance in humans. Therefore, the biology of telomeres and telomerase is a potential source of risk and drug-sensitivity markers for integrative, interdisciplinary cancer prevention involving behavioral and basic scientists, epidemiologists, clinical trialists, and biostatisticians. This biology reflects the exciting science of cancer prevention that enables advances in the practice and clinical impact of cancer prevention on several fronts. See articles by Blackburn, Tsyt, and Lippman (beginning on page 394) and Blackburn (on page 393) for more information.