REVIEW

1 Toxic Phytochemicals and Their Potential Risks for Human Cancer
Ann M. Bode and Zigang Dong

PERSPECTIVE

9 The Rise of HPV-Positive Oropharyngeal Cancers in the United States
Carole Fakhry and Ezra Cohen
See related article, p. 12

RESEARCH ARTICLES

12 Emergence of HPV16-Positive Oropharyngeal Cancer in Black Patients Over Time: University of Maryland 1992–2007
Dan P. Zandberg, Sandy Liu, Olga G. Goloubeva, Lisa M. Schumaker, and Kevin J. Cullen
See related perspective, p. 9

20 Evidence Supporting Product Standards for Carcinogens in Smokeless Tobacco Products
Dorothy K. Hatsukami, Irina Stepanov, Herb Severson, Joni A. Jensen, Bruce R. Lindgren, Kimberly Horn, Samir S. Kharivala, Julia Martin, Steven G. Carmella, Sharon E. Murphy, and Stephen S. Hecht

27 Prevention of Skin Carcinogenesis by the β-Blocker Carvedilol
Andy Chang, Steven Yeung, Arvind Thakkar, Kevin M. Huang, Mandy M. Liu, Rhye-Samuel Karanasatega, Cyrus Parsa, Robert Orlando, Edwin K. Jackson, Bradley T. Andresen, and Ying Huang

37 A Multiplexable, Microfluidic Platform for the Rapid Quantitation of a Biomarker Panel for Early Ovarian Cancer Detection at the Point-of-Care
Basil H. Shadfan, Archana R. Simmons, Glennon W. Simmons, Andy Ho, Jorge Wong, Karen H. Lu, Robert C. Bast Jr, and John T. McDevitt

49 Pap Test Use and Cervical Cancer Incidence in First Nations Women Living in Manitoba
Kathleen M. Decker, Alain A. Demers, Erich V. Kliewer, Natalie Biswanger, Grace Musto, Brenda Elias, Jane Griffith, and Donna Turner

56 Beta-Endorphin Cell Therapy for Cancer Prevention
Changqing Zhang, Sengottuvel Murugan, Nadka Boyadjieva, Shaima Jabbar, Pallavi Shrivastava, and Dipak K. Sarkar

68 A Novel Preclinical Method to Quantitatively Evaluate Early-Stage Metastatic Events at the Murine Blood–Brain Barrier

77 Dietary Diindolylmethane Suppresses Inflammation-Driven Lung Squamous Cell Carcinoma in Mice
Jung Min Song, Xuemin Qian, Fisum Teferi, Jing Pan, Yian Wang, and Fekadu Kassie

86 Plasma Metabolomic Profiles of Breast Cancer Patients after Short-term Limonene Intervention
Jessica A. Miller, Kirk Pappan, Patricia A. Thompson, Elizabeth J. Want, Alexandros P. Siskos, Hector C. Keun, Jacob Wulff, Chengcheng Hu, Julie E. Lang, and H.-H. Sherry Chow

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ABOUT THE COVER

Point-of-care (POC) diagnostic platforms have the potential to enable low-cost, large-scale screening. As no single biomarker is shed by all ovarian cancers, multiplexed biomarker panels promise improved sensitivity and specificity to address the unmet need for early detection of ovarian cancer. A programmable bio-nano-chip (p-BNC)—a multiplexable, microfluidic, modular platform—was configured to quantify a novel multimarker panel. The p-BNC assay card (shown) is a lab-on-a-chip platform that features a bead-based sensor core and a fully integrated microfluidic network that facilitates on-card sample preparation and metering, reagent storage, mixing, bubble and debris removal, and secure waste containment. By design, the p-BNC assay card minimizes benchtop sample and reagent preparation steps and associated laboratory tools and infrastructure, which is critical for POC analysis. In a 31-patient cohort encompassing early- and late-stage ovarian cancers along with benign and healthy controls, the multiplexed p-BNC panel was able to distinguish cases from controls with 68.7% sensitivity at 80% specificity. Taken together, the p-BNC shows strong promise as a diagnostic tool for large-scale screening that takes advantage of faster results and lower costs while leveraging possible improvement in sensitivity and specificity from biomarker panels. See article by Shadfan et al. (beginning on page 37) for more information.