BREAKING ADVANCES

4007 Highlights from Recent Cancer Literature

OBITUARY

4009 Donald Lee Morton: In Memoriam (1934–2014)
Dave S.B. Hoon

REVIEWS

4011 Role of the Neural Niche in Brain Metastatic Cancer
John Termini, Josh Neman, and Rahul Jandial

4016 Enhancing Reproducibility in Cancer Drug Screening: How Do We Move Forward?
Christos Hatzis, Philippe L. Bedard, Nicolai J. Birkbak, Andrew H. Beck, Hugo J.W.L. Aerts, David F. Stern, Leming Shi, Robert Clarke, John Quackenbush, and Benjamin Haibe-Kains

PERSPECTIVE

4024 The Increasing Urgency for Standards in Basic Biologic Research
Leonard P. Freedman and James Inglese

MICROENVIRONMENT AND IMMUNOLOGY

4030 Microbiota Modulate Tumoral Immune Surveillance in Lung through a γδT17 Immune Cell-Dependent Mechanism
Min Cheng, Liting Qian, Guodong Shen, Geng Bian, Tingjuan Xu, Weiping Xu, Gan Shen, and Shilian Hu

4042 Preclinical Evidence That PD1 Blockade Cooperates with Cancer Vaccine TEGVAX to Elicit Regression of Established Tumors
Juan Fu, Ian-James Malm, Deepak K. Kadayakkara, Hy Levitsky, Drew Pardoll, and Young J. Kim
Précis: This study offers a preclinical rationale for coadministering immune checkpoint therapies with cancer vaccines to vastly empower their efficacy, with major implications for the broader and more effective application of active immunotherapy in treating malignancy.

MOLECULAR AND CELLULAR PATHOBIOLOGY

4053 GPER Mediates Activation of HIF1α/VEGF Signaling by Estrogens
Ernestina Marianna De Francesco, Michele Pellegrino, Maria Francesca Santolla, Rosamaria Lappano, Emilia Ricchio, Sergio Abonante, and Marcello Maggiolini
Précis: These findings offer important new insights into how estrogens promote angiogenesis and progression in breast cancer.

PREVENTION AND EPIDEMIOLOGY

4065 Recent Prediagnostic Aspirin Use, Lymph Node Involvement, and 5-Year Mortality in Women with Stage I–III Breast Cancer: A Nationwide Population-Based Cohort Study
Thomas I. Barron, Evelyn M. Flahavan, Linda Sharp, Kathleen Bennett, and Kala Visvanathan
Précis: Aspirin use may protect against lymph node involvement in breast cancer, making a diagnosis of early-stage curable disease more likely even in the absence of general chemopreventive effects.

4078 Recent Oral Contraceptive Use by Formulation and Breast Cancer Risk among Women 20 to 49 Years of Age
Elisabeth F. Beaber, Diana S.M. Buist, William E. Barlow, Kathleen E. Malone, Susan D. Reed, and Christopher I. Li
Précis: Breast cancer risk appears to be increased by recent use of contemporary oral contraceptives, with some variation in this risk possibly associated with different formulations.
Telomere Length in White Blood Cell DNA and Lung Cancer: A Pooled Analysis of Three Prospective Cohorts

Wei Jie Seow, Richard M. Cawthon, Mark P. Purdie, Wei Hu, Yu-Tang Gao, Wen-Yi Huang, Stephanie J. Weinstein, Bu-Tian Ji, Jarmo Virtamo, H. Dean Hosgood III, Bryan A. Bassig, Xiao-Ou Shu, Qiuqin Cai, Yong-Bing Xiang, Shen Min, Wong-Ho Chow, Sonja I. Berndt, Christopher Kim, Unhee Lim, Demetrius Albanes, Neil E. Caporaso, Stephen Chanock, Wei Zheng, Nathaniel Rothman, and Qing Lan

Precis: Positive associations between telomere length in white blood cells and risk of lung cancer open an interesting new perspective on how immune cell alterations may affect susceptibility to this type of cancer.

Circadian and Melatonin Disruption by Exposure to Light at Night Drives Intrinsic Resistance to Tamoxifen Therapy in Breast Cancer

Robert T. Dauchy, Shulin Xiang, Lulu Mao, Samantha Brimer, Melissa A. Wren, Lin Yuan, Muralidharan Anbalagan, Adam Hauch, Tripp Frasch, Brian G. Rowan, David E. Blask, and Steven M. Hill

Precis: Striking demonstrations in a preclinical model of estrogen-dependent breast cancer show how disrupting normal circadian patterns of melatonin production by exposure to light at night can cause resistance to tamoxifen therapy.

Molecular Imaging with Bioluminescence and PET Reveals Viral Oncolysis Kinetics and Tumor Viability


Precis: Methods to image the replication cycles of oncolytic viruses noninvasively in vivo will assist the clinical development of this class of experimental therapeutics by helping identify virus expansion during dose escalation studies.

Function-Blocking ERBB3 Antibody Inhibits the Adaptive Response to RAF Inhibitor

Curtis H. Kugel III, Edward J. Hartsough, Michael A. Davies, Yulius Y. Setiady, and Andrew E. Aplin

Precis: This study provides a preclinical rationale to combine a RAF inhibitor with an ERBB3/HER3-neutralizing antibody to improve durable therapeutic responses in melanomas harboring BRF V600E mutations.

Engineered Fusokine GIFT4 Licenses the Ability of B Cells to Trigger a Tumoricidal T-cell Response

Jiusheng Deng, Shala Yuan, Andrea Pennati, Jordan Murphy, Jian Hui Wu, David Lawson, and Jacques Galipeau

Precis: This preclinical study introduces a chimeric cytokine composed of GM-CSF and IL4 that is a powerful inducer of melanoma-eradicating B cells, suggesting its candidacy as a novel immunotherapeutic tool and revealing a previously unrecognized potential for B cells in melanoma immunotherapy.
miRNA-128 Suppresses Prostate Cancer by Inhibiting BMI-1 to Inhibit Tumor-Initiating Cells
Min Jin, Tao Zhang, Can Liu, Mark A. Badeaux, Bigang Liu, Ruifang Liu, Collene Jeter, Xin Chen, Alexander V. Vlassov, and Dean G. Tang

Précis: These results define a tumor suppressor function for an miRNA that limits prostate cancer by blocking the properties of cancer stem-like cells in that setting, with potential implications to improve the treatment of recurrent disease driven by these cells.

ABC5 Maintains Melanoma-Initiating Cells through a Proinflammatory Cytokine Signaling Circuit
Brian J. Wilson, Karim R. Saab, Jie Ma, Tobias Schatton, Pablo Pütz, Qian Zhan, George F. Murphy, Martin Gasser, Ana Maria Waaga-Gasser, Natasha Y. Frank, and Markus H. Frank

Précis: These findings define a novel function for a drug efflux transporter molecule in cancer stem-like cell maintenance, possibly explaining its broad overexpression in many types of human cancer.

CORRECTION
Correction: Potentiation of the Novel Topoisomerase I Inhibitor Indenoisoquinoline LMP-400 by the Cell Checkpoint and Chk1-Chk2 Inhibitor AZD7762

ABOUT THE COVER
Induced PD-L1 expression in the tumor microenvironment can be abrogated with neutralizing antibodies against IFNγ. In the B16 model, TLR4/7/8 agonists-formulated tumor vaccine increased antitumor CTL response that correlated with increased tumor infiltrating T cells and increased PD-L1 expression in the tumor microenvironment. This induction of PD-L1 was found to be IFNγ dependent as shown. When combining PD-L1-inducing vaccine with PD1 blocking antibody, regression of established tumors was found. For details, see article by Fu and colleagues on page 4042.