BREAKING ADVANCES

Highlights from Recent Cancer Literature

REVIEWS

Signaling-Mediated Regulation of MicroRNA Processing
Jia Shen and Mien-Chie Hung

Fearful Symmetry: Subversion of Asymmetric Division in Cancer Development and Progression
Jeevisha Bajaj, Bryan Zimdahl, and Tannishtha Reya

The Emerging Protumor Role of γδ T Lymphocytes: Implications for Cancer Immunotherapy
Margarida Rei, Daniel J. Pennington, and Bruno Silva-Santos

PERSPECTIVES

Breast Cancer Prevention: Lessons to be Learned from Mechanisms of Early Pregnancy–Mediated Breast Cancer Protection
Fabienne Meier-Abt, Mohamed Bentires-Alj, and Christoph Rochlitz

Redundancy: A Critical Obstacle to Improving Cancer Therapy
Orit Lavi

MOLECULAR AND CELLULAR PATHOBIOLOGY

Long Noncoding RNA HULC Modulates Abnormal Lipid Metabolism in Hepatoma Cells through an miR-9–Mediated RXRA Signaling Pathway
Ming Cui, Zelin Xiao, Yue Wang, Minyong Zheng, Tianqiang Song, Xiaoli Cai, Baodi Sun, Lihong Ye, and Xiaodong Zhang

Précis: These results elucidate a long noncoding RNA-facilitated pathway of aberrant lipid metabolism that contributes to the development of liver cancer, with potential clinical implications for its prevention and management.
Single-Strand DNA-Binding Protein SSB1 Facilitates TERT Recruitment to Telomeres and Maintains Telomere G-Overhangs
Raj K. Pandita, Tracy T. Chow, Durga Udayakumar, Amanda L. Bain, Liza Cubeddu, Clayton R. Hunt, Wei Shi, Nobuo Horikoshi, Yong Zhao, Woodring E. Wright, Kum Kum Khanna, Jerry W. Shay, and Tej K. Pandita
Précis: These findings offer an explanation for how telomerase is recruited to telomeres, a critical step in maintaining telomere ends and cell viability in all cancer cells.

Prevention and Epidemiology
A Central Role for Heme Iron in Colon Carcinogenesis Associated with Red Meat Intake
Précis: Elevated risk of colon cancer associated with red meat consumption is linked to heme iron, which may initiate carcinogenesis by enabling lipid peroxidation, providing a possible etiologic basis to understand this connection.

Tumor and Stem Cell Biology
Establishment and Characterization of a Cell Line from Human Circulating Colon Cancer Cells
Laure Cayrefourcq, Thibault Mazard, Simon Joosse, Jérôme Solassol, Jeanne Ramos, Eric Assenat, Udo Schumacher, Valérie Costes, Thierry Maudelonde, Klaus Pantel, and Catherine Alix-Panabière
Précis: The analysis of circulating tumor cells will contribute to personalized medicine by tailoring anticancer therapies to the genetic and phenotypic characteristics of metastatic cells in individual cancer patients.

Therapeutics, Targets, and Chemical Biology
Crosstalk between KIT and FGFR3 Promotes Gastrointestinal Stromal Tumor Cell Growth and Drug Resistance
Nathalie Javidi-Sharifi, Elie Traer, Jacqueline Martinez, Aru Gupta, Takahiro Taguchi, Jennifer Dunlap, Michael C. Heinrich, Christopher L. Corless, Brian P. Rubin, Brian J. Druker, and Jeffrey W. Tyner
Précis: These findings provide a mechanistic rationale for use of existing FGFR inhibitors and multitarget inhibitors that target FGFR3 as strategies to improve treatment of gastrointestinal stromal tumors that exhibit resistance to imatinib mesylate, with immediate implications for clinical evaluation.

Corrections
Correction: Peptides and Aptamers Targeting HSP70: A Novel Approach for Anticancer Chemotherapy
Correction: Macrophage Inflammatory Protein Derivative ECI301 Enhances the Alarmin-Associated Abscopal Benefits of Tumor Radiotherapy

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ABOUT THE COVER

The high concentration of extracellular ATP in inflammatory lesions activates the purinergic P2RX7 receptor, which is expressed on immune and nonimmune cells of the gastrointestinal tract. The P2RX7 receptor participates in the initiation as well as the regulation of the inflammatory response and consequently can favor colon carcinogenesis. Using both genetic and pharmacological models of P2RX7 inactivation, we found that P2RX7 acted at an early stage to suppress the development of colitis-associated cancer. For details, see the article by Hofman and colleagues on page 835.