REVIEWS

475  Th9 Cells: A Novel CD4 T-cell Subset in the Immune War against Cancer
Frederique Végran, Lionel Apetoh, and Francois Ghiringhelli

480  Novel Insights into Head and Neck Cancer using Next-Generation "Omic" Technologies
Lusia Sepiashvili, Jeff P. Bruce, Shao Hui Huang, Brian O’Sullivan, Fei-Fei Liu, and Thomas Kiehl

MICROENVIRONMENT AND IMMUNOLOGY

487  Role of Chitinase 3–like-1 and Semaphorin 7a in Pulmonary Melanoma Metastasis
Bing Ma, Erica L. Herzog, Chun Geun Lee, Xiaoyan Peng, Chang-Min Lee, Xiaosong Chen, Sara Rockwell, Ja Seok Koo, Harriett Kluger, Roy S. Herbst, Mario Sznol, and Jack A. Elias
Précis: A member of an ancient gene family that binds the chitin in fungi and other pathogens is found to be needed to program lung microenvironments that are permissive for metastasis, with potential implications for learning how to block dissemination of many types of cancer to this common site.

497  Strict Requirement for Vector-Induced Type I Interferon in Efficacious Antitumor Responses to Virally Encoded IL12
Ignacio Melero, Jose I. Quettglas, Mercedes Reboredo, Juan Dubrot, Juan R. Rodriguez-Madoz, Ubux Mancheño, Erkuden Casales, Jose I. Riezu-Boj, Marta Ruiz-Guillen, Maria C. Ochoa, Miguel F. Samanned, Nathalie Thieblement, Cristian Smerdou, and Sandra Herras-Stabbs
Précis: These findings link overexpression of a lysophosphatidic acid receptor during liver cancer development to upregulation of the PIM3 oncogene, which is implicated in histone modification and apoptosis, with implications for prognosis and treatment in this disease setting.

MOLECULAR AND CELLULAR PATHOBIOLOGY

532  Lyosphosphatidic Acid Receptor LPAR6 Supports the Tumorigenicity of Hepatocellular Carcinoma
Antonio Mazzocca, Francesco Dituri, Flavia De Santis, Addolorata Filannino, Chiara Lopane, Regina C. Betz, Ying-Yi Li, Naofumi Mukaida, Peter Winter, Cosimo Tortorella, Gianluigi Giannelli, and Carlo Sabbà
Précis: These findings link overexpression of a lysophosphatidic acid receptor during liver cancer development to upregulation of the PIM3 oncogene, which is implicated in histone modification and apoptosis, with implications for prognosis and treatment in this disease setting.

544  Human Pancreatic Cancer Tumors Are Nutrient Poor and Tumor Cells Actively Scavenge Extracellular Protein
Jurje J. Kamphorst, Michel Nofal, Cosimo Commissio, Sean R. Hacket, Wenyun Lu, Elda Grabocka, Matthew G. Vander Heiden, George Miller, Jeffrey A. Dreibin, Dafna Bar-Sagi, Craig B. Thompson, and Joshua D. Rabinowitz
Précis: Scavenging of extracellular protein represents a previously unappreciated pathway of nutrient uptake in human pancreatic tumors, providing new insights into how these tumors grow in nutrient-poor conditions.
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554 Gain of Glucose-Independent Growth upon Metastasis of Breast Cancer Cells to the Brain
Jinyu Chen, Ho-Jeong Lee, Xuefeng Wu, Lei Huo, Sun-Jin Kim, Lei Xu, Yan Wang, Junqing He, Lakshmi R. Bollu, Guang Gao, Lei Xu, Yan Wang, Junqing He, Isiah J. Fidler, Lewis C. Cantley, Jason W. Locasale, and Zhang Weihua

Précis: This study defines a specific metabolic condition required to sustain brain metastasis, with therapeutic implications for how this deadly feature of advanced breast cancer might be eradicated.

559 Bruton Tyrosine Kinase Is a Therapeutic Target in Stem-like Cells from Multiple Myeloma
Ye Yang, Jumei Shi, Zhimin Gu, Mohamed E. Salama, Satyabrata Das, Erik Wendlandt, Hongwei Xu, Junwei Huang, Yi Tao, Mu Hao, Reinaldo Franqui, Dana Levasseur, Siegfried Janz, Guido Tricot, and Fenghuang Zhan

Précis: These findings provide a preclinical rationale for repositioning a recently approved drug to treat aggressive multiple myelomas, with immediate implications for clinical evaluation of this strategy.

PREVENTION AND EPIDEMIOLOGY

566 Identification of a Functional SNP in the 3′UTR of CXCR2 That Is Associated with Reduced Risk of Lung Cancer
Bríd M. Ryan, Ana I. Robles, Andrew C. McClary, Majda Haznadar, Elise D. Bowman, Sharon R. Pine, Derek Brown, Mohammed Khan, Kouya Shiraiishi, Takashi Kohn, Hirokazu Okayama, Ramakrishna Modali, Jun Yokota, and Curtis C. Harris

Précis: A genetic polymorphism in a chemokine receptor known to drive myeloid recruitment in the tumor microenvironment confers strong protection against lung cancer, with potential implications in understanding etiology, prognosis, and therapeutic response in this widespread disease.

576 Perinatal and Familial Risk Factors for Brain Tumors in Childhood through Young Adulthood
Casey Crump, Jan Sundquist, Weiva Sieh, Marilyn A. Winkleby, and Kristina Sundquist

Précis: In this large national cohort study, high birth weights associated with an increased risk of brain tumors were traced to a role for high growth rates rather than gestational age.

584 PDGFRα and β Play Critical Roles in Mediating Foxq1-Driven Breast Cancer Stemness and Chemoresistance
Fanyan Meng, Cecilia L. Speyer, Bin Zhang, Yongzhong Zhao, Wei Chen, David H. Gorski, Fred R. Miller, and Guojun Wu

Précis: These findings establish a novel functional connection in breast cancer, with implications for ways to combine targeted therapeutics to stratify patients and enhance efficacy.

THERAPEUTICS, TARGETS, AND CHEMICAL BIOLOGY

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Ye Yang, Jumei Shi, Zhimin Gu, Mohamed E. Salama, Satyabrata Das, Erik Wendlandt, Hongwei Xu, Junwei Huang, Yi Tao, Mu Hao, Reinaldo Franqui, Dana Levasseur, Siegfried Janz, Guido Tricot, and Fenghuang Zhan

Précis: These findings provide a preclinical rationale for repositioning a recently approved drug to treat aggressive multiple myelomas, with immediate implications for clinical evaluation of this strategy.

TUMOR AND STEM CELL BIOLOGY

605 Acute Tissue Injury Activates Satellite Cells and Promotes Sarcoma Formation via the HGF/c-MET Signaling Pathway
David Van Mater, Leonor Añó, Jordan M. Blum, Micah T. Webster, WeiQiao Huang, Nerissa Williams, Yan Ma, Diana M. Cardona, Chen-Ming Fan, and David G. Kirsch

Précis: Extending early insights from Ewing and other prominent physicians that injury causes sarcoma development, these authors found that tissue injury in a mouse model of soft tissue sarcoma acts as a strong promoter of tumor formation that is mediated by HGF/c-MET signaling.

615 Retraction: NRH:Quinone Oxidoreductase 2 and NAD(P)H:Quinone Oxidoreductase 1 Protect Tumor Suppressor p53 against 20S Proteasomal Degradation Leading to Stabilization and Activation of p53

616 Correction: Crosstalk between microRNA30a/b/c/d/e-5p and the Canonical Wnt Pathway: Implications for Multiple Myeloma Therapy

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ABOUT THE COVER

Altered metabolism is a common feature of cancer cells, but little is known as to what metabolic changes benefit breast cancer brain metastases. Fructose-1,6-bisphosphatase 2 (FBP2), a rate limiting enzyme of gluconeogenesis, was found to be significantly upregulated in breast cancer brain metastasis. FBP2 empowers brain metastatic cancer cells with the ability to grow independently of glucose. For details, see article by Chen and colleagues on page 554.