 highlights of this issue

special features

CCR translations

3 CD137 as a Biomarker for Tumor-Reactive T Cells: Finding Gold in the Desert
Yuwen Zhu and Lieping Chen
See related article, p. 44

6 Targeting Metabolic Scavenging in Pancreatic Cancer
Costas A. Lyssiotis and Lewis C. Cantley
See related article, p. 120

CCR perspectives in drug approval

9 Radium Ra 223 Dichloride Injection: U.S. Food and Drug Administration Drug Approval Summary

CCR drug updates

15 Trastuzumab Emtansine: A Novel Antibody–Drug Conjugate for HER2-Positive Breast Cancer
Ian Krop and Eric P. Winer

molecular pathways

21 Molecular Pathways: SWI/SNF (BAF) Complexes Are Frequently Mutated in Cancer—Mechanisms and Potential Therapeutic Insights
Xiaofeng Wang, Jeffrey R. Haswell, and Charles W.M. Roberts

28 Molecular Pathways: Sterols and Receptor Signaling in Cancer
Linar Gabitova, Andrey Gorin, and Igor Astsaturov

review

35 Noncoding RNAs in Prostate Cancer: The Long and the Short of It
Eva M. Bolton, Alexandra V. Tuzova, Anna L. Walsh, Thomas Lynch, and Antoinette S. Perry

humans cancer biology

44 CD137 Accurately Identifies and Enriches for Naturally Occurring Tumor-Reactive T Cells in Tumor
Qunrui Ye, De-Gang Song, Mathilde Poussin, Tori Yamamoto, Andrew Best, Chunsheng Li, George Coukos, and Daniel J. Powell Jr.
See related article, p. 3

56 αB-Crystallin: A Novel Regulator of Breast Cancer Metastasis to the Brain

65 A High Frequency of Activating Extracellular Domain ERBB2 (HER2) Mutation in Micropapillary Urothelial Carcinoma

68 HDM2 Regulation by AURKA Promotes Cell Survival in Gastric Cancer
Vikas Sebdev, Ahmed Katsha, Janet Arras, Dunfa Peng, Mohammed Soutto, Jeffrey Ecsedy, Alexander Zaika, Abbes Belkhiri, and Wael El-Rifai

87 Discrete Molecular Classes of Ovarian Cancer Suggestive of Unique Mechanisms of Transformation and Metastases
Nilesh L. Gardi, Tejaswini U. Deshpande, Swapnil C. Kamble, Sagar R. Badwe, and Sharmila A. Bapat

100 Genes Upregulated in Prostate Cancer Reactive Stroma Promote Prostate Cancer Progression In Vivo
Olga Dakhova, David Rowley, and Michael Ittmann

cancer therapy: preclinical

110 The ATP-Competitive mTOR Inhibitor INK128 Enhances In Vitro and In Vivo Radiosensitivity of Pancreatic Carcinoma Cells
Thomas J. Hayman, Amy Wahba, Barbara H. Rath, Heekyong Baek, Tamalee Kramp, Uma T. Shankavaram, Kevin Camphausen, and Philip J. Tofilon
| 120 | Targeting of NAD Metabolism in Pancreatic Cancer Cells: Potential Novel Therapy for Pancreatic Tumors | Claudia C.S. Chini, Anatilde M. Gonzalez Guerrico, Verónica Nin, Juliana Camacho-Pereira, Carlos Escande, María Thereza Barbosa, and Eduardo N. Chini
See related article, p. 6 |
| 131 | Interleukin-7 Mediates Selective Expansion of Tumor-redirected Cytotoxic T Lymphocytes (CTLs) without Enhancement of Regulatory T-cell Inhibition | Serena K. Perna, Daria Pagliara, Aruna Mahendravada, Hao Liu, Malcolm K. Brenner, Barbara Savoldo, and Gianpietro Dotti |
| 140 | Transient Activation of Hedgehog Pathway Rescued Irradiation-Induced Hyposalivation by Preserving Salivary Stem/Progenitor Cells and Parasympathetic Innervation | Bo Hai, Lizi Zheng Qin, Zhenhua Yang, Qingguo Zhao, Lei Shangguan, Xinyu Ti, Yanqiu Zhao, Sangroh Kim, Dharanipathy Rangaraj, and Fei Liu |
| 151 | Gambogic Acid Induces Apoptosis in Imatinib-Resistant Chronic Myeloid Leukemia Cells via Inducing Proteasome Inhibition and Caspase-Dependent Bcr-Abl Downregulation | Xianping Shi, Xin Chen, Xiaofen Li, Xiaoying Lan, Chong Zhao, Shouting Liu, Hongbiao Huang, Ningning Liu, Siyan Liao, Wenbin Song, Ping Zhou, Shunqing Wang, Li Xu, Xuejun Wang, Q. Ping Dou, and Jinbao Liu |
| 164 | AXL Is a Key Regulator of Inherent and Chemotherapy-Induced Invasion and Predicts a Poor Clinical Outcome in Early-Stage Colon Cancer | Philip D. Dunne, Darragh M. McGart, Jaime K. Blayney, Murugan Kalimutho, Samanda Greer, Tingting Wang, Supriya Srividya, Chee Wee Ong, Ken Arthur, Maurice Loughrey, Kearsa Redmond, Daniel B. Longley, Manuel Salto-Tellez, Patrick G. Johnston, and Sandra Van Schaeybroeck |
| 176 | Erlotinib, Gefitinib, and Vandetanib Inhibit Human Nucleoside Transporters and Protect Cancer Cells from Gemcitabine Cytotoxicity | Vijaya L. Damara, Tatara Satar, Delores Mowles, Michelle Kuzma, Anderson J. Ryan, Carol E. Cass, and Michael B. Sawyer |
| 187 | Neutrophils Promote the Malignant Glioma Phenotype through S100A4 | Ji Liang, Yuji Piao, Lindsay Holmes, Gregory N. Fuller, Verlene Henry, Ningyi Tiao, and John F. de Groot |
| 199 | Direct Inhibition of Retinoblastoma Phosphorylation by Nimobiolide Causes Cell-Cycle Arrest and Suppresses Glioblastoma Growth | Swagata Karak, Rishi Raj Chhipa, Jane Anderson, Xiaona Liu, Heather Henry, Anjelika Gasilina, Nicholas Nassar, Jayeeta Roychoudhury, Jason P Clark, Ashish Kumar, Giovanni M. Paulet, Pradip K. Ghosh, and Biplab Dasgupta |

**CANCER THERAPY: CLINICAL**

| 213 | A Dose-Escalation Study of SAR3419, an Anti-CD19 Antibody Maytansinoid Conjugate, Administered by Intravenous Infusion Once Weekly in Patients with Relapsed/Refractory B-cell Non-Hodgkin Lymphoma | Vincent Ribrag, Jehan Dupuis, Herve Tilly, Franck Morschhauser, Fabrice Laine, Roch Houot, Corinne Ha Tou, Christiane Copie, Andrea Varga, John Lambert, Laurence Hatteville, Samira Ziti-Ljajic, Anne Caron, Sandrine Payrand, and Bertrand Coiffier |
| 221 | Long-lasting Disease Stabilization in the Absence of Toxicity in Metastatic Lung Cancer Patients Vaccinated with an Epitope Derived from Indoleamine 2,3 Dioxygenase | Trine Zeeberg Iversen, Lotte Engell-Noerregaard, Eva Ellebæk, Rikke Andersen, Stine Klaer Larsen, Jon Bjoem, Claus Zeyher, Cécile Gouttefangeas, Birthe Moerk Thomsen, Bente Holm, Per thorb Straten, Anders Mellemgaard, Mads Hald Andersen, and Inge Marie Svane |
| 246 | Tumor Growth Rate Is an Early Indicator of Antitumor Drug Activity in Phase I Clinical Trials | Charles Fert, Marianna Fernandez, Antoine Hollebeque, Serge Koscienly, Antonin Levy, Christophe Massard, Rastislav Balbeda, Brian Bot, Carlos Gomez-Roca, Clarisse Dromain, Samy Ammar, and Jean-Charles Soria |
PREDICTIVE BIOMARKERS AND PERSONALIZED MEDICINE

253 Plasma MicroRNA Are Disease Response Biomarkers in Classical Hodgkin Lymphoma
Kimberley Jones, Jamie P. Nourse, Colm Keane, Atul Bhatnagar, and Maher K. Gandhi

265 Modeling RAS Phenotype in Colorectal Cancer Uncovers Novel Molecular Traits of RAS Dependency and Improves Prediction of Response to Targeted Agents in Patients
Justin Guinney, Charles Ferté, Jonathan Dry, Robert McEwen, Gilles Manceau, KJ Kao, Kai-Ming Chang, Claus Bendtsen, Kevin Hudson, Erich Huang, Brian Dougherty, Michel Ducreux, Jean-Charles Soria, Stephen Friend, Jonathan Derry, and Pierre Laurent-Puig

ABOUT THE COVER
The cover shows immunofluorescent labeling of the blood-brain barrier marker GLUT-1 (red) in cultured human brain microvascular endothelial cells. Nuclei (blue) were stained with DAPI. For details, see the article by Malin and colleagues on page 56 of this issue.