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8981  Inhibition of Glutaminase Preferentially Slows Growth of Glioma Cells with Mutant IDH1
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8981  Heat Shock Protein 60 Regulation of the Mitochondrial Permeability Transition Pore in Tumor Cells
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**PRÉCIS:** IDH1 mutations create a higher dependence of glioma cells on α-ketoglutarate, relative to normal cells, that could be therapeutically exploited by targeting glutamine metabolism.

**PRÉCIS:** Findings implicate a chaperone network in controlling mitochondrial permeability transition and apoptosis in cancer cells.
INTEGRATED SYSTEMS AND TECHNOLOGIES

9012

Multimodal Mass Spectrometric Imaging of Small Molecules Reveals Distinct Spatio-Molecular Signatures in Differentially Metastatic Breast Tumor Models

Précis: Mass spectrometry imaging techniques can identify different tissue microenvironments in breast tumors, possibly improving their clinicopathological assessment in the future.

9022

PET Imaging of Tumor Neovascularization in a Transgenic Mouse Model with a Novel $^{64}$Cu-DOTA-Knottin Peptide

Précis: Methods that improve PET imaging in cancer offer opportunities for improved detection and management.

9031

Intranodal Vaccination with Naked Antigen-Encoding RNA Elicits Potent Prophylactic and Therapeutic Antitumoral Immunity
Sebastian Kreiter, Abderraouf Selmi, Mustafa Diken, Michael Koslowski, Cedrik M. Britten, Christoph Huber, Özlem Türeci, and Ugur Sahin

Précis: Findings define methods to achieve strong antigen-specific immunity and cancer cures using antigen-encoding RNA in preclinical animal models.

9041

A Therapeutic OX40 Agonist Dynamically Alters Dendritic, Endothelial, and T Cell Subsets within the Established Tumor Microenvironment
Angela D. Pardee, Dustin McCurry, Sean Alber, Peisheng Hu, Alan L. Epstein, and Walter J. Storkus

Précis: Correcting tumoral immune escape exerts therapeutic effects against established tumors by improving the delivery of antitumor T cells into the tumor microenvironment.

MULTIENVIRONMENT AND IMMUNOLOGY

9053

Multiple Injections of Electroporated Allogeneous T Cells Expressing a Chimeric Antigen Receptor Mediate Regression of Human Disseminated Tumor
Yangbing Zhao, Edmund Moon, Carmine Carpenito, Chrysalis M. Paulos, Xiaojun Liu, Andrea L. Brennan, Anne Chew, Richard G. Carroll, John Scholler, Bruce L. Levine, Steven M. Albelda, and Carl H. June

Précis: Findings offer preclinical proof-of-concept for a novel adoptive T-cell transfer approach for cancer treatment that can potentiate antitumor effects and complement approaches using retroviral and lentiviral engineered T-cell therapies.

9062

PET Imaging of Tumor Neovascularization in a Transgenic Mouse Model with a Novel $^{64}$Cu-DOTA-Knottin Peptide

Précis: Methods that improve PET imaging in cancer offer opportunities for improved detection and management.

9073

Improved Clinical Outcome in Indolent B-Cell Lymphoma Patients Vaccinated with Allogeneous Tumor Cells Experiencing Immunogenic Death
Roberta Zappasodi, Serenella M. Pupa, Gaia C. Ghedini, Italia Bongarzone, Michele Magni, Antonello D. Cabras, Mario P. Colombo, Carmelo Carlo-Stella, Alessandro M. Gianni, and Massimo Di Nicola

Précis: Clinical findings confirm expectations of a stringent correlation between the therapeutic efficacy of a dendritic cell vaccine and the extent of immunogenic death induced in the tumor cells used to load the dendritic cells before vaccination.

9081

High-Throughput Characterization of 10 New Minor Histocompatibility Antigens by Whole Genome Association Scanning

Précis: In this study, efficient T-cell selection was combined with SNP genotyping to discover a significant number of new minor histocompatibility antigens that can be targeted by cellular immunotherapy of cancer.
Critical Roles of DMP1 in Human Epidermal Growth Factor Receptor 2/neu-Arf-p53 Signaling and Breast Cancer Development

Pankaj Taneja, Dejan Maglic, Fumitake Kai, Takayuki Sugiyama, Robert D. Kendig, Donna P. Frazier, Mark C. Willingham, and Kazushi Inoue

Précis: Mechanistic findings define a transcriptional cascade that plays a critical role in quenching HER2/neu oncogenic signals known to promote breast cancer.

Global Downstream Pathway Analysis Reveals a Dependence of Oncogenic NF-E2–Related Factor 2 Mutation on the mTOR Growth Signaling Pathway

Tatsuhito Shihata, Shigeru Saito, Akiko Kokubu, Takafumi Suzuki, Masayuki Yamamoto, and Setsuo Hirohashi

Précis: Findings offer a rationale to target a master transcriptional regulator of antioxidant genes and phase II detoxifying enzymes as an anticancer strategy, also suggesting it as a novel theranostic biomarker.

Insulin-Like Growth Factor I Suppresses Bone Morphogenetic Protein Signaling in Prostate Cancer Cells by Activating mTOR Signaling

Reema S. Wahdan-Alaswad, Kyung Song, Tracy L. Krebs, Dorjee T.N. Shola, Jose A. Gomez, Shigemi Matsuyama, and David Danielpour

Précis: Findings elucidate how a key growth factor in prostate cancer acts at several levels to shut down a central pathway of epithelial cell function in the prostate, with important therapeutic implications for prostate cancer management.

The Mitotic Kinase Aurora-A Induces Mammary Cell Migration and Breast Cancer Metastasis by Activating the Cofilin-F-actin Pathway

Li-hui Wang, Jin Xiang, Min Yan, Yan Zhang, Yan Zhao, Cui-feng Yue, Jie Xu, Fei-meng Zheng, Jin-na Chen, Zhuang Kang, Tong-sheng Chen, Da Xing, and Quentin Liu

Précis: An important mitotic kinase that is targeted by small molecule inhibitors currently in clinical testing is found to have an important role in supporting metastasis.

Metabolic Profiling Detects Field Effects in Nondysplastic Tissue from Esophageal Cancer Patients

Danny Yakoub, Hector C. Keun, Robert Goldin, and George B. Hanna

Précis: Esophageal cancer can be detected by metabolic profiling of adjacent histologically normal mucosa.

Dysregulation of the Mitogen Granulin in Human Cancer through the miR-15/107 microRNA Gene Group

Wang-Xia Wang, Natasha Kyprianou, Xiaowei Wang, and Peter T. Nelson

Précis: Findings elucidate microRNA-mediated control of a common mitogen in a variety of human cancers, the regulation of which had been previously obscure, with implications for microRNA-based therapeutic targeting.

Mammalian Target of Rapamycin–Dependent Acinar Cell Neoplasia after Inactivation of Apc and Pten in the Mouse Salivary Gland: Implications for Human Acinic Cell Carcinoma

Cassandra R. Diegel, Kathleen R. Cho, Adel K. El-Naggar, Bart O. Williams, and Charlotte Lindwall

Précis: Findings report a novel preclinical model and a rationale to evaluate rapamycin therapy for salivary gland acinic cell carcinoma, a low grade neoplasm but one that tends to recur.

Expression Profiling in Progressive Stages of Fumarate-Hydratase Deficiency: The Contribution of Metabolic Changes to Tumorigenesis


Précis: Fumarate hydratase deficiency compels cells to prematurely adopt a metabolic phenotype that predisposes them to cell proliferation and growth ultimately to cancer.
Acquired TNFRSF14 Mutations in Follicular Lymphoma Are Associated with Worse Prognosis

Précis: Findings identify a candidate genetic marker of prognosis in follicular lymphoma, which may provide an explanation as to why its treatment with rituximab provides less benefit in some patients.

Epigenetically Deregulated microRNA-375 Is Involved in a Positive Feedback Loop with Estrogen Receptor α in Breast Cancer Cells
Pedro de Souza Rocha Simonini, Achim Breiling, Nibedita Gupta, Mahdi Malekpour, Mahmoud Youns, Ramesh Omranipour, Fatemeh Malekpour, Stefano Volinia, Carlo M. Croce, Hossein Najmabadi, Sven Diederichs, Özgür Sahin, Doris Mayer, Frank Lyko, Jörg D. Hoheisel, and Yasser Riazalhosseini

Précis: Findings offer significant new insights into how the estrogen receptor is deregulated in breast cancer.

Alternative Splicing of Caspase 9 Is Modulated by the Phosphoinositide 3-Kinase/Akt Pathway via Phosphorylation of SRp30a

Précis: Findings define a functionally important alternative splicing mechanism in lung adenocarcinoma that offers a novel approach to therapeutic development.

Upregulation of DLX5 Promotes Ovarian Cancer Cell Proliferation by Enhancing IRS-2-AKT Signaling
Yinfei Tan, Mitchell Cheung, Jianming Pei, Craig W. Menges, Andrew K. Godwin, and Joseph R. Testa

Précis: Findings define a homeobox protein that positively modifies a variety of oncogenic signals in ovarian cancer, with potential prognostic applications.

Human RecQL4 Helicase Plays Critical Roles in Prostate Carcinogenesis
Yanrong Su, Jarah A. Meador, Gloria M. Calaf, Luca Prosetti De-Santis, Yongliang Zhao, Vilhelm A. Bohr, and Adyabalam S. Balajee

Précis: Study implicates a DNA helicase regulated by Bb-E2F as an important driver of metastatic progression of prostate cancer.

Serum Vitamin D and Risk of Bladder Cancer
Alison M. Mondul, Stephanie J. Weinstein, Satu Männistö, Kirk Snyder, Ronald L. Horst, Jarmo Virtamo, and Demetrius Albanes

Précis: Accumulating evidence argues that serum levels of vitamin D exert a profound influence on cancer risk, as illustrated in this study of bladder cancer.

Pesticide Use Modifies the Association Between Genetic Variants on Chromosome Sq24 and Prostate Cancer
Stella Koutros, Laura E. Beane Freeman, Sonja I. Berndt, Gabriella Andreotti, Jay H. Lubin, Dale P. Sandler, Jane A. Hoppin, Kai Yu, Qizhai Li, Laura A. Burdette, Jeffrey Yuenger, Meredith Yeager, and Michael C.R. Alavanja

Précis: Study offers an excellent illustration of how an environmental modifier can radically alter the impact of a genetic risk marker on a patient's susceptibility to disease.

Ki-67 as a Molecular Target for Therapy in an In vitro Three-Dimensional Model for Ovarian Cancer
Ramtin Rahmanzadeh, Prakash Rai, Jonathan P. Celli, Imran Rizvi, Bettina Baron-Lühr, Johannes Gerdes, and Tayyaba Hasan

Précis: A common immunohistopathological marker used for staging of clinical cancers may offer unexpected opportunities as a therapeutic target.
**MGMT-Independent Temozolomide Resistance in Pediatric Glioblastoma Cells Associated with a PI3-Kinase–Mediated HOX/Stem Cell Gene Signature**

Nathalie Gaspar, Lynley Marshall, Lara Perryman, Dorine A. Bax, Suzanne E. Little, Marta Viana-Pereira, Swee Y. Sharp, Gilles Vassal, Andrew D.J. Pearson, Rui M. Reis, Darren Hargrave, Paul Workman, and Chris Jones

Précis: Findings identify a reversible novel mechanism of resistance to the alkylating agent temozolomide in pediatric glioblastoma model systems and patient samples.

**Class III β-Tubulin Expression Predicts Prostate Tumor Aggressiveness and Patient Response to Docetaxel-Based Chemotherapy**

Guillaume Ploussard, Stéphane Terry, Pascale Maillé, Yves Allory, Nanor Sirab, Laurence Kheuang, Pascale Soyeux, Nathalie Nicolauw, Estelle Coppolani, Bernard Paule, Laurent Salomon, Stéphane Culine, Ralph Buttyan, Francis Vacherot, and Alexandre de la Taille

Précis: Findings suggest a novel theranostic molecule in advanced prostate cancer to predict responses to taxane therapy and improve treatment of taxane-resistant disease.

**Deubiquitinase Inhibition by Small-Molecule WP1130 Triggers Aggresome Formation and Tumor Cell Apoptosis**

Vaibhav Kapuria, Luke F. Peterson, Dexing Fang, William G. Bornmann, Moshe Talpaz, and Nicholas J. Donato

Précis: An antitumor compound previously found to block signaling by Jak2 kinase is found to target deubiquitinases that are commonly overexpressed in cancer cells.

**Selective Killing of Tumor Neovasculature Paradoxically Improves Chemotherapy Delivery to Tumors**

Freddy E. Escorcia, Erik Henke, Michael R. McDevitt, Carlos H. Villa, Peter Smith-Jones, Ronald G. Blasberg, Robert Benezra, and David A. Scheinberg

Précis: A novel approach to remodel the tumor vasculature has strongly positive pharmacokinetic consequences on cancer drug delivery in a preclinical model, resulting in better therapy and survival outcomes.

**Nox2 NADPH Oxidase Promotes Pathologic Cardiac Remodeling Associated with Doxorubicin Chemotherapy**

Youyou Zhao, Declan McLaughlin, Emma Robinson, Adam P. Harvey, Michelle B. Hookham, Ajay M. Shah, Barbara J. McDermott, and David J. Grieve

Précis: A major ROS-producing enzyme in the heart is implicated in adverse cardiac remodeling caused by doxorubicin chemotherapy, implying a new therapeutic strategy to reduce doxorubicin cardiotoxicity.

**WNT11 Expression Is Induced by Estrogen-Related Receptor α and β-Catenin and Acts in an Autocrine Manner to Increase Cancer Cell Migration**

Mary A. Dwyer, James D. Joseph, Hilary E. Wade, Matthew L. Eaton, Rebecca S. Kunder, Dmitri Kazmin, Ching-yi Chang, and Donald P. McDonnell

Précis: Results define an autocrine mechanism controlled by the nuclear receptor ERRA, associated with poor outcomes in several cancers, that influences cancer cell migratory capacity.

**Induction of DNA Damage-Inducible Gene GADD45β Contributes to Sorafenib-Induced Apoptosis in Hepatocellular Carcinoma Cells**

Da-Liang Ou, Ying-Chun Shen, Sung-Liang Yu, Kuen-Feng Chen, Pei-Yen Yeh, Hsiang-Hsuan Fan, Wen-Chi Feng, Ching-Tzu Wang, Liang-In Lin, Chiun Hsu, and Ann-Lii Cheng

Précis: Mechanistic findings suggest a potential surrogate marker that could be useful to predict the efficacy of Sorafenib in liver cancer.

**Synergistic Enhancement of Carboplatin Efficacy with Photodynamic Therapy in a Three-Dimensional Model for Micrometastatic Ovarian Cancer**

Imran Rizvi, Jonathan P. Celli, Conor L. Evans, Adnan O. Abu-Yousif, Alona Muzikansky, Brian W. Pogue, Dianne Finkelstein, and Tayyaba Hasan

Précis: A 3D model for ovarian micrometastases is introduced as a high-throughput platform to report treatment response, exemplified in this study to show how photodynamic therapy synergistically enhances carboplatin efficacy.
Voluntary Running Prevents Progressive Memory Decline and Increases Adult Hippocampal Neurogenesis and Growth after Whole-Brain Irradiation
Sarah J.E. Wong-Goodrich, Madeline L. Pfau, Catherine T. Flores, Jennifer A. Fraser, Christina L. Williams, and Lee W. Jones

Précis: Studies in mice suggest that voluntary exercise can alleviate progressive memory loss after cranial irradiation, strongly prompting studies in clinical settings.

Telomerase-Dependent Oncolytic Adenovirus Sensitizes Human Cancer Cells to Ionizing Radiation via Inhibition of DNA Repair Machinery
Shinji Kuroda, Toshiya Fujiwara, Yasuhiro Shirakawa, Yasumoto Yamasaki, Shuya Yano, Futoshi Uno, Hiroshi Tazawa, Yuuri Hashimoto, Yuichi Watanabe, Kazuhiro Noma, Yasuo Urata, Shunsuke Kagawa, and Toshiyoshi Fujiwara

Précis: Results illustrate the potential of combining engineered oncolytic virotherapy and ionizing radiation as a strategy to improve the management of human cancer.

Brick1 Is an Essential Regulator of Actin Cytoskeleton Required for Embryonic Development and Cell Transformation
Beatriz Escobar, Guillermo de Cárcer, Gonzalo Fernández-Miranda, Alberto Casçón, José J. Bravo-Cordero, María C. Montoya, Mercedes Robledo, Marta Cañamero, and Marcos Malumbres

Précis: Genetic ablation of Brick1, a component of the Wave/Scar actin regulatory complex, appears to exert a protective effect against malignant development in renal cancer and other cancers where loss occurs.

mTOR Complex Component Rictor Interacts with PKÇ and Regulates Cancer Cell Metastasis
Fei Zhang, Xiaofang Zhang, Menghui Li, Peng Chen, Bin Zhang, Hua Guo, Wenfeng Cao, Xiyong Wei, Xuchen Cao, Xishan Hao, and Ning Zhang

Précis: Findings illuminate understanding of how EGF activates the mTORC2 growth regulatory complex to drive breast cancer metastasis, with implications for clinical studies of mTOR inhibitors.
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<td>9402</td>
<td>ANCCA/ATAD2 Overexpression Identifies Breast Cancer Patients with Poor Prognosis, Acting to Drive Proliferation and Survival of Triple-Negative Cells through Control of B-Myb and EZH2</td>
<td>Ekaterina V. Kalashnikova, Alexey S. Revenko, Abigail T. Gemo, Nicolas P. Andrews, Clifford G. Tepper, June X. Zou, Robert D. Cardiff, Alexander D. Borowsky, and Hong-Wu Chen</td>
<td><em>Findings suggest that the prognostic significance of a chromatin coregulator for hormone receptors in breast cancer is based on its role in integrating multiple oncogenic programs, with particular importance to aggressive triple-negative tumors.</em></td>
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<td>9413</td>
<td>Quantitative In vivo Imaging of the Effects of Inhibiting Integrin Signaling via Src and FAK on Cancer Cell Movement: Effects on E-cadherin Dynamics</td>
<td>Marta Canel, Alan Serrels, Derek Miller, Paul Timpson, Bryan Serrels, Margaret C. Frame, and Valerie G. Brunton</td>
<td><em>Results identify a novel role for FAK and Src in regulating tumor cell movement in vivo using fluorescence based microscopy.</em></td>
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<td>9423</td>
<td>Hepatocyte Nuclear Factor-4α Promotes Gut Neoplasia in Mice and Protects against the Production of Reactive Oxygen Species</td>
<td>Mathieu Darsigny, Jean-Philippe Babeu, Ernest G. Seidman, Fernand-Pierre Gendron, Emile Levy, Julie Carrier, Nathalie Perreault, and François Boudreau</td>
<td><em>Findings point to the nuclear receptor HNF4α as a potential therapeutic target to modify epithelial cell resistance to ROS production during intestinal tumorigenesis.</em></td>
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<td>Cld7, A Candidate Tumor Suppressor on Chromosome 13q14, Regulates Pathways of DNA Damage/Repair and Apoptosis</td>
<td>Xiaobo Zhou and Karl Münger</td>
<td><em>Findings support the definition of a new tumor suppressor located at chromosome 13q14 and suggest its possible utility in predicting cancer chemosensitivity.</em></td>
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Silencing of Autocrine Motility Factor Induces Mesenchymal-to-Epithelial Transition and Suppression of Osteosarcoma Pulmonary Metastasis

Yasufumi Niinaka, Kiyoshi Harada, Masahiro Fujimuro, Masamitsu Oda, Arayo Haga, Misa Hosoki, Narikazu Uzawa, Naoya Arai, Satoshi Yamaguchi, Masashi Yamashiro, and Avraham Raz

Précis: An enzyme that functions inside cells in glycolysis and gluconeogenesis has a second extracellular function that in cancer provides a critical support for invasive cell motility, EMT, and metastasis.

The Telomerase Inhibitor Imetelstat Depletes Cancer Stem Cells in Breast and Pancreatic Cancer Cell Lines

Immanual Joseph, Robert Tressler, Ekaterina Bassett, Calvin Harley, Christen M. Buseman, Preeti Pattamatta, Woodring E. Wright, Jerry W. Shay, and Ning F. Go

Précis: Findings offer preclinical proof-of-concept for a highly tractable and attractive new approach to target cancer stem cells in cancer therapy.

Loss of Thioredoxin Reductase 1 Renders Tumors Highly Susceptible to Pharmacologic Glutathione Deprivation

Pankaj Kumar Mandal, Manuela Schneider, Pirkko Kölle, Peter Kuhlencordt, Heidi Förster, Heike Beck, Georg W. Bornkamm, and Marcus Conrad

Précis: Findings offer preclinical proof-of-concept that simultaneous inhibition of more than one cellular antioxidant system could be highly effective in killing tumor cells via redox modifiers.

Induction of Human Epithelial Stem/Progenitor Expansion by FOXM1

Emilios Gemenetzidis, Daniela Elena-Costea, Eric K. Parkinson, Ahmad Waseem, Hong Wan, and Muy-Teck Teh

Précis: Results identify a transcription factor in the FOXM1 family that can hijack adult human stem cells to jump start cancer initiation.

Correction: Curcumin Blocks RON Tyrosine Kinase–Mediated Invasion of Breast Carcinoma Cells

Correction: RG7204 (PLX4032), a Selective BRAFV600E Inhibitor, Displays Potent Antitumor Activity in Preclinical Melanoma Models


Retraction: An Effective Vaccine Strategy Protective against Antigenically Distinct Tumor Variants

Retraction: CTL Activation Using the Natural Low-Affinity Epitope 222–229 from Tyrosinase-Related Protein 1 Leads to Tumor Rejection

ABOUT THE COVER

Selective antibody-mediated, α-particle–directed killing of LS174T human colon cancer neovascular endothelium using 225Ac-E4G10 “normalizes” vessels. Animals were treated 15 days before sacrifice and tumors were stained for endothelium (green), pericytes (red), and nuclei (blue). This is a representative cross-section of vessels of 225Ac-E4G10 treated tumors. More pericytes were associated with endothelial cells when compared with chemotherapy-treated or saline-treated controls. Boxes are 6-μm square. For details, see the article by Escorcia and colleagues on page 9277 of this issue.
Cancer Research

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