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16 The Cyclic AMP Pathway Is a Sex-Specific Modifier of Glioma Risk in Type 1 Neurofibromatosis Patients
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Précis: These results establishing a sex-specific role for cAMP regulation in affecting the risk of gliomas in NF1 patients may offer new rational strategies to reduce risk or treat brain tumors in this population.

CLINICAL STUDIES

22 Oncolytic Measles Virus Expressing the Sodium Iodide Symporter to Treat Drug-Resistant Ovarian Cancer

Précis: Although clinical application of oncolytic viruses as experimental therapies has frequently been challenged on the grounds of efficacy, more recently engineered vectors based on measles viruses may offer effective options to treat certain advanced cancers such as metastatic ovarian cancer.

INTEGRATED SYSTEMS AND TECHNOLOGIES

31 A Noninvasive Procedure for Early-Stage Discrimination of Malignant and Precancerous Vocal Fold Lesions Based on Laryngeal Dynamics Analysis
Jakob Unger, Jörg Lohscheller, Maximilian Reiter, Katharina Eder, Christian S. Betz, and Maria Schuster

Précis: This study offers a proof of concept for a procedure to diagnose most types of laryngeal cancers, possibly helping avoid current invasive diagnostic procedures that are associated with greater time, morbidity, and cost.

MICROENVIRONMENT AND IMMUNOLOGY

40 Akt1 and Akt3 Exert Opposing Roles in the Regulation of Vascular Tumor Growth

Précis: These findings offer a preclinical proof of concept for the therapeutic utility of treating poorly understood vascular tumors such as angiosarcoma with S6K inhibitors.
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<td>Deepak K. Kadayakkara, Michael J. Korrer, Jeff W.M. Bulte, and Hyam I. Levitsky</td>
<td>Précis: An adjuvant molecule that enhances the therapeutic effects of a cancer vaccine was found paradoxically to reduce the efficiency of antigen delivery to lymph nodes, challenging what has been thought to be necessary in an effective adjuvant—at least as formed by expectations from studies of infectious disease vaccines.</td>
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<td>Tropomodulin 1 Expression Driven by NF-κB Enhances Breast Cancer Growth</td>
<td>Taku Ito-Kureha, Naohiko Koshikawa, Mizuki Yamamoto, Rentaro Sembha, Noritaka Yamaguchi, Tadashi Yamamoto, Motohara Seiki, and Jun-ichiro Inoue</td>
<td>Précis: These findings highlight a novel mechanistic linkage to help explain the NF-κB-dependent malignant phenotype of triple-negative breast cancer, with implications for defining useful theranostic targets in this aggressive disease.</td>
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<td>Twist1 Is a Key Regulator of Cancer-Associated Fibroblasts</td>
<td>Keun-Woo Lee, So-Young Yeo, Chang Ohk Sung, and Seok-Hyang Kim</td>
<td>Précis: Already known as a central contributor to EMT, which drives metastatic progression in cancer cells, the transcription factor Twist1 is also found to function in cancer-associated fibroblasts, where it appears to offer a compelling target to depromog the tumor-supporting features of the cancer microenvironment.</td>
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<td>Intracellular Osteopontin Inhibits Toll-like Receptor Signaling and Impedes Liver Carcinogenesis</td>
<td>Xiaoyu Fan, Chunyan He, Wei Jing, Xuyu Zhou, Rui Chen, Lei Cao, Minhui Zhu, Rongjie Jia, Hao Wang, Yajun Guo, and Jian Zhao</td>
<td>Précis: Osteopontin is known to act at the tumor microenvironment to promote inflammatory processes that facilitate progression, but this study reveals that it also acts within macrophages that infiltrate budding liver tumors to achieve this end by altering Toll-like receptor signaling.</td>
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<td>PLK1 Phosphorylates PAX3-FOXO1, the Inhibition of Which Triggers Regression of Alveolar Rhabdomyosarcoma</td>
<td>Verena Thalhammer, Laura A. Lopez-Garcia, David Herrera-Martin, Regina Hecker, Dominik Laubscher, Maria E. Gierisch, Marco Wachtel, Peter Bode, Paolo Nanni, Bernd Blank, Ewa Koscielniak, and Beat W. Schäfer</td>
<td>Précis: These findings offer a preclinical proof of concept to target the mitotic kinase PLK1 as a rational strategy to treat an aggressive pediatric tumor.</td>
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<td>LASP1 Is a HIF1α Target Gene Critical for Metastasis of Pancreatic Cancer</td>
<td>Tiansuo Zhao, He Ren, Jing Li, Jing Chen, Huan Zhang, Wen Xin, Yan Sun, Lei Sun, Yongwei Yang, Junwei Sun, Xiuchao Wang, Song Gao, Chonghiao Huang, Huaefang Zhang, Shengyu Yang, and Jiuhao Hao</td>
<td>Précis: This study identifies a key modulator of metastasis in pancreatic ductal carcinomas that are typically already disseminated at the time of diagnosis, a central challenge in the management of this disease.</td>
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<td>VEGF-Targeted Therapy Stably Modulates the Glycolytic Phenotype of Tumor Cells</td>
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<td>Précis: These findings suggest that the application of antiangiogenic therapy in cancer selects for metabolic traits of tumors that not only confer treatment resistance but also potentially have a more aggressive character, challenging a central tenet of antiangiogenic therapy as inherently less susceptible to the evolution of resistance.</td>
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<td>Foretinib Is Effective Therapy for Metastatic Sonic Hedgehog Medulloblastoma</td>
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<td>Précis: These findings provide a strong rationale to clinically evaluate foretinib immediately as a therapy for a defined subset of patients with the most common form of malignant pediatric brain tumor.</td>
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Cables1 Complex Couples Survival Signaling to the Cell Death Machinery
Zhi Shi, Hae R. Park, Yuhong Du, Zijian Li, Kejun Cheng, Shi-Yong Sun, Zenggang Li, Haian Fu, and Fadlo R. Khuri

Précis: The novel regulatory interface described in this report may offer a new strategy for the development of AKT inhibitors for cancer intervention.

Four-in-One Antibodies Have Superior Cancer Inhibitory Activity against EGFR, HER2, HER3, and VEGF through Disruption of HER/MET Crosstalk
Shi Hu, Wenyun Fu, Weihao Xu, Yang Yang, Hiroaki Takeda, and Wangdong Zhu

Précis: These results establish a new principle to achieve combined HER receptor inhibition and limit drug resistance using a single antibody.

Genetic Disruption of Lactate/H⁺ Symporters (MCTs) and Their Subunit CD147/BASIGIN Sensitizes Glycolytic Tumor Cells to Phenformin
Ibtissam Marchiq, Renaud Le Floch, Danielle Roux, Marie-Pierre Simon, and Jacques Pouyssegur

Précis: This study offers preclinical proof of concept for targeting lactic acid export as a therapeutic approach, the effect of which can be magnified by coupling it with phenformin, an antidiabetic biguanide drug.

Mdm2 and Aurora Kinase A Inhibitors Synergize to Block Melanoma Growth by Driving Apoptosis and Immune Clearance of Tumor Cells
Anna E. Vilgelm, Jeff S. Pawlikowski, Yan Liu, Oriana E. Hawkins, Tyler A. Davis, Jessica Smith, Kevin P. Weller, Linda W. Horton, Colt M. McClain, Gregory D. Ayers, David C. Turner, David C. Essaka, Clinton F. Stewart, Jeffrey A. Sosman, Mark C. Kelley, Jeffrey A. Ecsedy, Jeffrey N. Johnston, and Ann Richmond

Précis: These findings offer preclinical proof of concept for a combination drug treatment that leverages both senescence and immune surveillance to improve therapeutic outcomes.

Contributions to Drug Resistance in Glioblastoma Derived from Malignant Cells in the Sub-Ependymal Zone

Précis: A particular region of the adult brain analogous to the embryonic forebrain germinal zone, which harbors various neural stem cell populations, is discovered in glioblastoma patients to harbor tumor-initiating cells, identifying this region as a target for immediate therapeutic attention by neuro-oncologists.

α-Tubulin Acetylation Elevated in Metastatic and Basal-like Breast Cancer Cells Promotes Microtentacle Formation, Adhesion, and Invasive Migration
Amanda E. Boggs, Michele I Vitolo, Rebecca A Whipple, Monica S Charpentier, Olga G Goloubeva, Olga B Ioffe, Kimberly C Tuttle, Jana Slovic, Yiling Lu, Gordon B Mills, and Stuart S Martin

Précis: These results identify a tight correlation between acetylated α-tubulin levels and aggressive metastatic behavior in breast cancer, with potential implications for the definition of a simple prognostic biomarker in patients with basal-like breast cancers.

B-Raf Inhibitors Induce Epithelial Differentiation in BRAF-Mutant Colorectal Cancer Cells
Ricarda Herr, Martin Köhler, Hana Andrilová, Florian Weinberg, Yvonne Möller, Sebastian Halbach, Lisa Lutz, Justin Mastroianni, Martin Klose, Nicola Bittermann, Silke Kowar, Robert Zeiher, Monilola A. Olayioye, Silke Lasemann, Haucke Busch, Melanie Boerries, and Tilman Brummer

Précis: This article reveals a novel facet of BRAF and MEK inhibitors currently in early clinical trials for evaluation in patients with metastatic prostate cancer.

SYK Is a Candidate Kinase Target for the Treatment of Advanced Prostate Cancer

Précis: These striking preclinical findings offer a mechanistic rationale to immediately reposition SYK kinase inhibitors currently in early clinical trials for evaluation in patients with metastatic prostate cancer.
ABOUT THE COVER

Timing of GLA in relation to vaccination impacts the pattern of OT1 cell accumulation. Representative bioluminescent images show site-specific accumulation of OT1 cells in different groups of mice 4 days post hind footpad vaccination. Vaccine-primed T cells accumulated in the draining lymph nodes in mice that received GVAX only or when GLA 24 was given 24 hrs post GVAX. However, when GLA is coadministered with GVAX, a systemic pattern of T-cell accumulation was observed. For details, see article by Kadayakkaza and colleagues on page 51.