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These findings present a photodynamic agent that can be used for both photodynamic therapy and image-guided surgery, allowing better visualization of tumor margins and elimination of residual tumor tissues.

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These findings confirm the fidelity and sensitivity of the EMT lineage tracing (Tri-PyMT) model and highlight the differential contributions of pre- and post-EMT tumor cells in breast cancer metastasis.
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170 Molecular Profiles of Matched Primary and Metastatic Tumor Samples Support a Linear Evolutionary Model of Breast Cancer
Runpu Chen, Steve Goodison, and Yijun Sun
Analysis of matched primary and metastatic tumor samples supports an unidirectional, linear cancer evolution process and sheds light on longstanding issues regarding the origins of molecular subtypes and their progression relationships.

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Grace H. McGregor, Andrew D. Campbell, Sigrid K. Fey, Sergey Tumanov, David Sumpton, Giovanny Rodriguez Blanco, Gillian Mackay, Colin Nixon, Alexei Vazquez, Owen J. Sansom, and Jurre J. Kamphorst
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TRANSLATIONAL SCIENCE

304  Clinical Evolution of Epithelial–Mesenchymal Transition in Human Carcinomas

These findings suggest that p53-deficient cancer cells activate the mevalonate pathway via SREBP2 and promote the synthesis of ubiquinone that plays an essential role in reducing oxidative stress and supports the synthesis of pyrimidine nucleotide.

This study identifies NDRG1 as a potent and endogenous suppressor of glioblastoma cell growth, suggesting the clinical benefits of NDRG1-targeted therapeutics against suppresor of glioblastoma.

This study implicates the selective epigenetic repression of SMAD3 in SCC-TAFs in the clinical failure of nintedanib in SCC and supports that patients with ADC may benefit from antifibrotic drugs targeting stromal TGFβ/SMAD3.

Tumor cell interaction with platelets produces chimeric extracellular vesicles that suppress primary tumor growth by activating tumor-eliminating macrophages, while promoting metastasis through EMT and endothelial activation.

Despite the role of EMT in metastasis and drug resistance, no standardized assessment of EMT phenotypic heterogeneity in human carcinomas exists: the EMT-IFA allows for clinical monitoring of tumor adaptation to therapy.
Inactivation of the AMPK–GATA3–ECHS1 Pathway Induces Fatty Acid Synthesis That Promotes Clear Cell Renal Cell Carcinoma Growth

Yuan-Yuan Qu, Rui Zhao, Hai-Liang Zhang, Qian Zhou, Fu-Jiang Xu, Xuan Zhang, Wen-Hao Xu, Ning Shao, Shu-Xian Zhou, Bo Dai, Yao Zhu, Guo-Hai Shi, Yi-Jun Shen, Yi-Ping Zhu, Cheng-Tao Han, Kun Chang, Yan Lin, Wei-Dong Zang, Wei Xu, Ding-Wei Ye, Shi-Min Zhao, and Jian-Yuan Zhao

These findings uncover molecular mechanisms underlying lipid accumulation in ccRCC, suggesting the AMPK–GATA3–ECHS1 pathway as a potential therapeutic target and prognostic biomarker.

CoA Synthase (COASY) Mediates Radiation Resistance via PI3K Signaling in Rectal Cancer

Sylvain Ferrandon, Jennifer DeVecchio, Leonardo Duraes, Hanumant Chouhan, Georgios Karagkounis, Jacqueline Davenport, Matthew Orloff, David Liska, and Matthew F. Kalady

COASY is a novel radiotherapy response modulator in rectal cancer that regulates PI3K activation and DNA repair. Furthermore, COASY levels directly correlate with radiation response and serve as a predictive biomarker.

Population and Prevention Science

Penetrance Estimates Over Time to First and Second Primary Cancer Diagnosis in Families with Li-Fraumeni Syndrome: A Single Institution Perspective


These findings present an open-source R package LFSPRO that could be used for genetic counseling and health management of individuals with LFS as it estimates the risk of both first and second primary cancer diagnosis.

See related article, p. 354

CORRECTIONS

Correction: Combined Depletion of Cell Cycle and Transcriptional Cyclin-Dependent Kinase Activities Induces Apoptosis in Cancer Cells

Dongpo Cai, Vaughan M. Latham Jr, Xinxin Zhang, and Geoffrey I. Shapiro

Correction: Targeting of PYK2 Synergizes with EGFR Antagonists in Basal-like TNBC and Circumvents HER3-Associated Resistance via the NEDD4–NDRG1 Axis


Editor’s Notes

Editor’s Note: Dominant-Negative Fas Mutation Is Reversed by Down-expression of c-FLIP

Marie Bernéau, Sophie Daburon, Jean-François Moreau, Jean-Luc Taupin, and Patrick Legembre

Editor’s Note: p38 Mitogen-activated Protein Kinase Pathway Suppresses Cell Survival by Inducing Dephosphorylation of Mitogen-activated Protein/Extracellular Signal-regulated Kinase1,2

Song-Ping Li, Melissa R. Junttila, Jiahui Han, Veli-Matti Kähäri, and Jukka Westermarck
The transcription factor Twist1 is known to promote breast cancer invasion and metastasis, but the molecular changes controlled by Twist1 during these processes remain elusive. Georgess and colleagues used organotypic culture combined with RNA-sequencing and functional assays to identify Prkd1 as a direct and druggable transcriptional target of Twist1. Prkd1 kinase activity is required for dissemination as it downregulates cell-cell adhesion and drives matrix-directed invasion and persistent migration. Prkd1 expression correlates with increased metastatic burden in breast cancer patients and is required for efficient metastasis in a mouse model for basal breast cancer. For details, see the article by Georgess and colleagues on page 204.
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