Poster Session A  
Sunday, June 26, 2016  
1:00 p.m.–3:30 p.m.  
Galleria Hall

A01 Mechanical properties of matrices strongly influence spontaneous tumor dormancy and responses to chemotherapy in a 3D model of metastasis. Amanda Clark, University of Pittsburgh, Pittsburgh, PA, United States.

A02 Multiple spatio-temporal scale modeling with application to brain cancer. Yusheng Feng, The University of Texas at San Antonio, San Antonio, TX, United States.

A03 Formins stabilize cell-ECM adhesions during invasion onset. Tim Fessenden, University of Chicago, Chicago, IL, United States.

A04 Node of MAPK activation drives tumor cell invasion and migration: Capturing biophysical regulation at single cell resolution in 3-D. Aime Franco, University of Arkansas for Medical Sciences, Little Rock, AR, United States.

A05 Evaluation of in vitro three dimensional breast cancer surrogates using histologic morphology and non-invasive imaging to monitor growth and viability throughout culture. Kayla Goliwas, University of Alabama at Birmingham, Birmingham, AL, United States.

A06 Mammary tumor cells of different subtypes are influenced by variations in engineered hydrogel matrix stiffness. Cheryl Gomillion, University of Georgia, Athens, GA, United States.

A07 A systems biology approach to modeling bone metastases. Scott Guelcher, Vanderbilt University, Nashville, TN, United States.


A09 Predicting response to whole brain radiotherapy in a murine model of glioma. David Hormuth, Vanderbilt University, Nashville, TN, United States.

A10 Correlating magnetic resonance and molecular imaging using three dimensional untreated virtual control. Joshua Jacobs, Mayo Clinic, Rochester, MN, United States.

A11 Calibration, selection and validation of tumor growth models. Ernesto Lima, Institute for Computational Engineering and Sciences (ICES) - The University of Texas, Austin, TX, United States.

A12 Identifying drivers of resistance by morphological phenotyping and deep learning. James Longden, BRIC - University of Copenhagen, Copenhagen, Denmark.

A13 Predictive computational modeling to define effective treatment strategies for bone metastatic prostate cancer. Conor Lynch, Moffitt Cancer Center, Tampa, FL, United States.

A14 Predicting the response of triple negative breast cancer to doxorubicin. Matthew McKenna, Vanderbilt University, Nashville, TN, United States.

A16 Using 3D tumor simulations to determine optimal therapeutic conditions for the cold atmospheric plasma device. William Murphy, The George Washington University, Washington, DC, United States.

A17 Genomic analysis and simulation for understanding heterogenous cancer evolution. Atsushi Niida, The University of Tokyo, Institute of Medical Science, Tokyo, Japan.

A18 A novel 3D co-culture system for the study of adipocyte and extracellular matrix influences on the breast cancer phenotype. Nikitha Pallegar, Memorial University of Newfoundland, St. Johns, NL, Canada.

A19 Chemotherapeutic treatment enriches for cancer stem cell content in breast cancer spheroids. Daniel Reynolds, Boston University, Boston, MA, United States.

A20 Use of cell-free plasma DNA for dynamic monitoring of response to cytotoxic chemotherapy. Daniel Ruderman, USC Keck School of Medicine, Los Angeles, CA, United States.

A21 3D tumor models in bioreactors recapitulate microenvironment and disease progression. Vitor E Santo, iBET; ITQB-NOVA, Oeiras, Portugal.

A22 A window into 3D culture: A multi-modal imaging compatible bioreactor for developing tumor growth models. Abigail Searfoss, Vanderbilt University, Nashville, TN, United States.

A23 A finite element model of perfusion and diffusion within tumors based on dynamic contrast enhanced magnetic resonance imaging. Ryan Woodall, The University of Texas at Austin, Austin, TX, United States.

A24 ZAP-70 and SYK regulation in the B cell receptor pathway in chronic lymphocytic leukemia. Maria Frushicheva, Massachusetts Institute of Technology, Cambridge, MA, United States.

A25 Systems biology approach to delineating DNA damage response and R-loop dependencies in Ewing sarcoma. Aparna Gorthi, University of Texas Health Science Center at San Antonio, San Antonio, TX, United States.

A26 Shotgun lipidomics analysis of temozolomide-treated glioblastoma. Soo Jung Ha, Purdue University, West Lafayette, IN, United States.

A27 A linked data approach to discover HPV oncoproteins and RB1 induced mutation associations for the retinoblastoma research. Alokkumar Jha, Insight Centre for Data Analytics, National University of Ireland Galway, Galway, Ireland.

A28 Imaged-based computational predictions of imaging agent efficacy in pancreatic tumors expressing TLR2. Aleksandra Karolak, Moffitt Cancer Center, Tampa, FL, United States.
A29 Heterogeneity of androgen receptor dynamics and drug response in prostate cancer cells. Katherin Patsch, University of Southern California, Los Angeles, CA, United States.

A30 Characterizing the non-linear dependency of the CDK5-Rb axis in non-small cell lung cancer. Jaileene Perez-Morales, Ponce Health Sciences University - Ponce Research Institute, Ponce, PR, United States.

A31 Early signaling dynamics of the epidermal growth factor receptor. Raven Reddy, Massachusetts Institute of Technology, Cambridge, MA, United States.

A32 Tumor-matrix interactions in early ductal invasions: Integrating histology imaging with computational modeling. Katarzyna Rejniak, H. Lee Moffitt Cancer Center & Research Institute, Tampa, FL, United States.

A33 An individualized predictive 3D model of tumor response to topotecan for a patient-derived orthotopic xenograft model of pediatric neuroblastoma. Abbas Shirinifard, St. Jude Children's Research Hospital, Memphis, TN, United States.

A34 Modeling and analysis of YAP/TAZ activity integrating mechanosensing and the Hippo pathway. Meng Sun, Boston University, Boston, MA, United States.


A36 Study of stromal mechanoregulation of tumor metabolism and growth dynamics. Michael Anderson, University of Massachusetts Boston, Boston, MA, United States.


A38 Biophysical regulation of breast cancer metastasis. Aaron Baker, University of Texas at Austin, Austin, TX, United States.

A39, PR05 Glycoprotein-mediated tissue mechanics regulate glioblastoma aggression. J. Barnes, UCSF, San Francisco, CA, United States.

A40 A novel, biosynthetic 3D hydrogel system for breast cancer mechanobiology studies. Amy Blatt, University of Michigan, Ann Arbor, MI, United States.

A41 Biomechanics: A new therapeutic innovation deposit – From the proof of concept to the proof of efficacy. Remy Brossel, Cell Constraint & Cancer Inc., Arles, France.

A42 Systematic modulation of the physical microenvironment for characterization of cancer cell lines and primary tissue. Luke Cassereau, Xcell Biosciences, San Francisco, CA, United States.
A43 Interfacial migration patterns in glioblastoma are analyzed in structured hydrogel platforms. Jee-Wei Chen, University of Illinois at Urbana-Champaign, Urbana, IL, United States.


A45 Obesity-induced inflammation and desmoplasia promote pancreatic cancer progression and resistance to chemotherapy. Dai Fukumura, MGH, Boston, MA, United States.

A46, PR04 Mechanisms and pathophysiologic relevance of fluid shear stress resistance in malignant cells. Michael Henry, University of Iowa, Carver College of Medicine, Iowa City, IA, United States.

A47 Interstitial flow increases patient-derived glioma stem cell invasion via CXCR4, CXCL12, and CD44-mediated mechanisms in distinctive cell populations. Kathryn Kingsmore, University of Virginia, Charlottesville, VA, United States.

A49 Tumor-associated interstitial flow promotes macrophage migration and pro-metastatic M2 phenotype in 3D ECM. Ran Li, Massachusetts Institute of Technology, Cambridge, MA, United States.

A50 Enzyme-mediated stiffening hydrogels for probing myofibroblastic activation of pancreatic stellate cell in 3D. Chien-Chi Lin, Indiana University-Purdue University Indianapolis, Indianapolis, IN, United States.

A51 The role of extracellular stiffness in metastatic cell invasion. Marianne Lintz, Cornell University, Ithaca, NY, United States.

A52 Regulation of the internal mechanical properties of cancer cells: An integrated computational and experimental study. Michael Mak, Massachusetts Institute of Technology, Cambridge, MA, United States.

A53 Probing forces and modulation of cancer cell mechanical properties during transendothelial migration. Emad Moeendarbary, Massachusetts Institute of Technology, Cambridge, MA, United States.

A54 Extracellular matrix geometry and 3D spatial confinement trigger diverse mechanisms of primary human glioblastoma cell migration. James Nyagilo, University of Texas Southwestern Medical Center, Dallas, TX, United States.

A55, PR08 Mutant KRAS decouples glycolysis from cell mechanics in non-small cell lung cancer. Jin Suk Park, UT Southwestern Medical Center, Dallas, TX, United States.

A56, PR03 Mechanobiology of epithelia on native basement membranes and relevance for cancer cell invasion. Marija Plodinec, Institute of Pathology, University Hospital Basel, Basel, Switzerland.
A57 Novel 3D tumor-stromal model highlights the importance of ECM composition and biophysical properties in pancreatic cancer EMT and drug resistance. TJ Puls, Purdue University, West Lafayette, IN, United States.

A58 Cell motility in a basement membrane gel concentrates ECM around breast epithelial cells, a feature lost in malignant cells. Claire Robertson, Lawrence Berkeley National Lab, Berkeley, CA, United States.

A59 Glycosylation dynamically tunes the biophysical properties of the cancer cell glycocalyx. Carolyn Shurer, Cornell University, Ithaca, NY, United States.

A60 Hyaluronan and cancer cell derived swelling of solid tumors and implications for cancer therapy. Triantafyllos Stylianopoulos, University of Cyprus, Nicosia, Cyprus.

A61 Advanced intravital imaging to monitor enzymatic targeting of mechanoreciprocity in pancreatic cancer. Claire Vennin, The Garvan Institute of Medical Research, Sydney, Australia.


A63 Collective and individual migration after the epithelial-mesenchymal transition in engineered microenvironments. Ian Wong, Brown University, Providence, RI, United States.

A64 Growth force generated by a dividing tumor cell in three-dimensional environment. Fan Yuan, Duke University, Durham, NC, United States.

A65 Topographical guidance of angiogenesis at an interface of collagen densities. Matthew Zanotelli, Cornell University, Ithaca, NY, United States.
**Poster Session B**
Monday, June 27, 2016
5:00 p.m.–7:00 p.m.
Galleria Hall

**B01** Autocrine fibronectin supports metastatic latency in the bone marrow extracellular matrix.
Lauren Barney, University of Massachusetts, Amherst, MA, United States.

**B02** Open multi-microwell array for the study of paracrine signaling in tumors.
Maribella Domenech, Universidad de Puerto Rico, Mayaguez, PR, United States.

**B03** Magneto-nanosensor platform for probing low-affinity protein-protein interactions:
Jung-Rok Lee, Stanford University, Stanford, CA, United States.

**B04** From modeling to *in vivo* tracking: A new platform for the design of delivery vectors that exploit tumor microfluidics.
Sara Nizzero, Houston Methodist Research Institute, Houston, TX, United States.

**B05** Engineered biomaterials as essential tools to determine the mechanisms of resistance to tyrosine kinase inhibitors in glioblastoma.
Sara Pedron, University of Illinois at Urbana-Champaign, Urbana, IL, United States.

**B06** Circulatory shear flow alters the viability and proliferation of circulating colon cancer cells.
Jiandi Wan, Rochester Institute of Technology, Rochester, NY, United States.

**B07** Visualization of the mechanisms of metastasis within a biomimetic engineered tumor microenvironment encompassing a perfusable cylindrical 3D microvessel.
Andrew Wong, Johns Hopkins University, Baltimore, MD, United States.

**B08** Biomimetic culture platform for *ex vivo* preservation of patient-derived multiple myeloma cells.
Jenny Zilberberg, Hackensack University Medical Center, Hackensack, NJ, United States.

**B09** The Greater Genomic Landscape: Chromatin heterogeneity during tumor formation and chemoevasion.
Luay Almassalha, Northwestern University, Evanston, IL, United States.

**B10** Improved survival through high-resolution tumor detection using real-time fluorescence image-guided surgery in ovarian cancer.
Neelkanth Bardhan, Massachusetts Institute of Technology, Cambridge, MA, United States.

**B11** Label-free hyperspectral microscopy detects alterations in nanoscale cellular structure with high temporal resolution.
John Chandler, Northwestern University, Evanston, IL, United States.

**B12** Adding angiotensin-system inhibitors to anti-angiogenic therapy reduces vasogenic edema in newly diagnosed glioblastomas but not in recurrent disease.
Kyrre Emblem, Oslo University Hospital, Oslo, Norway.

**B13** High-content imaging to quantitate colorectal cancer associated fibroblast heterogeneity.
Colleen Garvey, University of Southern California, Los Angeles, CA, United States.
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B14 The effect of sunitinib treatment in human melanoma xenografts: Associations with angiogenic profiles. Jon-Vidar Gaustad, Oslo University Hospital, Oslo, Norway.

B15 Computed tomography for quantitative imaging of live cancer cells with isotropic 3D spatial resolution. Laimonas Kelbauskas, Arizona State University, Tempe, AZ, United States.

B16 The detection of ductal carcinoma using noninvasive hyperspectral imaging. Yasser Khouj, West Virginia University, Morgantown, WV, United States.

B17 Quantification of three-dimensional collagen fiber organization as a sensitive indicator of cancerous changes. Zhiyi Liu, Tufts University, Medford, MA, United States.

B18 A label-free, high content, moderate throughput analytical platform for quantitative kinetic analysis of cell behavior upon drug activation in cell-culture models based on the Kolmogorov-Smirnov test. Ed Luther, Northeastern University, Boston, MA, United States.

B19 Multimodal contrast agents for integrated preoperative and intraoperative imaging of cancer. William Payne, University of Nebraska Medical Center, Omaha, NE, United States.

B20 Non-invasive, label-free monitoring of mitochondrial organization within three dimensional human epithelial tissues. Dimitra Pouli, Tufts University, Medford, MA, United States.

B21 Apparent diffusion coefficient measurements predict tumor stromal effects of Smoothened inhibitor of sonic hedgehog signaling. Tista Roy Chaudhuri, State University of NY at Buffalo, Buffalo, NY, United States.

B22 Quantitative tumor imaging using magnetic nanoparticles. Srinivas Sridhar, Northeastern University and Harvard Medical School, Boston, MA, United States.

B23, PR07 A biosensor mouse to predict the dissociation and spread of pancreatic cancer. Paul Timpson, The Garvan Institute of Medical Research, Sydney, Australia.

B24 De-clotting tumor to improve the perfusion, distribution and efficacy of chemotherapy and nanotherapeutics. Taslim Al-Hilal, Texas Tech University Health Science Center, Amarillo, TX, United States.

B25 Experimental and numerical assessment of anticancer agent pharmacokinetics in brain metastases from breast cancer after focused ultrasound-induced blood-brain/blood-tumor barrier disruption. Costas Arvanitis, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, United States.

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B27, PR06  VEGF-targeted therapy induces extracellular matrix remodeling and increases mechanical barriers to therapy in colorectal cancer liver metastases. Dai Fukumura, Massachusetts General Hospital and Harvard Medical School, Boston, MA, United States.

B28 Engineering of biocompatible hydrogels for sequential and sustained release of anticancer drugs for combination cancer therapy. Avinash Bajaj, Regional Centre for Biotechnology, Faridabad, India.

B29 Nanoformulations and sustained delivery systems for the PARP inhibitors Olaparib and Talazoparib. Paige Baldwin, Northeastern University, Boston, MA, United States.

B30 Sustained release of PARP inhibitor Talazoparib and chemotherapeutic Docetaxel from modified brachytherapy spacers for treatment of breast and prostate cancer. Jodi Belz, Northeastern University, Boston, MA, United States.

B31 Development of an implanted pump for metronomic delivery of chemotherapy and biological compounds: The virtue of local delivery. Thomas Chen, University of Southern California, Los Angeles, CA, United States.

B32 Feedback optimized gene electrotransfer for immunotherapy. Richard Connolly, OncoSec Medical Inc., San Diego, CA, United States.

B33 PEGylated squalenoyl-gemcitabine nanoparticles for the treatment of glioblastoma. Alice Gaudin, Yale University, New Haven, CT, United States.

B34 Resveratrol in transferrin-modified liposomes for eliminating both, bulk tumor cells and tumor-initiating cells in glioblastoma. Aditi Jhaveri, Northeastern University, Boston, MA, United States.


B36 Optimization of stromal modulation and drug-transporter interactions of a dovitinib/gemcitabine combination regimen in pancreatic cancer models. Sheryl Trueman, University at Buffalo, Buffalo, NY, United States.

B37 Photothermal therapy of glioblastoma multiforme using multiwalled carbon nanotubes optimized for diffusion in extracellular space. Brittany Eldridge, Wake Forest University, Winston Salem, NC, United States.

B38 Re-sensitization of GBM to alkylating agents via sustained local O6-BG in combination with systemic TMZ. Shiran Ferber, David H. Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology, Cambridge, MA, United States.

B39 Computational modeling of therapy using nanovectors altering macrophage subtypes to treat hypo-perfused tumor lesions. Hermann Frieboes, University of Louisville, Louisville, KY, United States.
B40 **P-selectin is a nanotherapeutic delivery target to the tumor microenvironment.** Daniel Heller, Memorial Sloan Kettering Cancer Center, New York, NY, United States.

B41 **Gold nanoparticles based platforms for localized radiosensitization in cancer radiation therapy.** Rajiv Kumar, Northeastern University, Boston, MA, United States.

B42 **Silencing of DNA repair proteins with ECO/siRNA nanoparticles for the enhancement of radiation response in glioblastoma.** Jennifer Lee, National Cancer Institute, Bethesda, MD, United States.

B43 **Significant improvements in therapeutic index for conjugated payloads using a nanoparticle-drug conjugate (NDC) platform to provide sustained drug release and potentially improved anticancer effects.** Chester Metcalfe, Cerulean, Waltham, MA, United States.

B44 **Biological mechanisms involved in nanoparticle-enhanced radiation therapy for pancreatic cancer.** Autumn Paro, Northeastern University, Boston, MA, United States.

B45 **Silencing β3 Integrin by targeted ECO/siRNA nanoparticles inhibits EMT and metastasis of triple-negative breast cancer.** Jenny Parvani, Case Western Reserve University, Cleveland, OH, United States.

B46 **Surface chemistry governs cellular tropism of nanoparticles in the brain.** Eric Song, Yale University, New Haven, CT, United States.

B47 **Silver nanoparticles exhibit subtype specific cytotoxic and therapeutic effects in claudin low breast cancer in vitro and in vivo.** Jessica Swanner, Wake Forest School of Medicine, Winston Salem, NC, United States.

B48 **Prostate cancer pre-treatment with nanoformulated Olaparib overcomes radiation resistance.** Anne van de Ven, Northeastern University, Boston, MA, United States.

B49 **In vivo detection of an ovarian cancer biomarker via single-walled carbon nanotube optical bandgap modulation.** Ryan Williams, Memorial Sloan Kettering Cancer Center, New York, NY, United States.

B50 **CSF1-dependent control circuits regulate growth factor homeostasis in the melanoma tumor system.** Jeremy Jacox, Yale University, New Haven, CT, United States.

B51 **Tumor cell evolutionary strategies to overcome immune response.** Kimberly Luddy, H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL, United States.

B52 **2-in-1 ‘sniper’ nanomedicines rescue dendritic cells by two pronged inhibition of JAK2/STAT-3 and p38 MAPK pathways.** Siva Kumar Natarajan, Brigham and Women's Hospital, Boston, MA, United States.
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B53 T lymphocyte engineering with responsive cytokine nanogels for enhanced efficacy and safety of adoptive cell therapy for cancer. Li Tang, Massachusetts Institute of Technology, Boston, MA, United States.

B54 Microenvironment induced impairments of T-cell mechanosensing of melanoma antigens. Susan Thomas, Georgia Institute of Technology, Atlanta, GA, United States.

B55 Evasion of antiviral immune response and enhanced antitumor efficacy of oncolytic adenovirus in combination with hydrogel maxtrix. Chae-Ok Yun, Department of Bioengineering, College of Engineering, Hanyang University, Seoul, Korea, Republic Of.

B56 Breaching endosomal barriers for carried-mediated intracellular delivery of messenger RNA. Gaurav Sahay, Oregon State University, Portland, OR, United States.

B57 RNAi nanotechnology for cancer target validation and therapy. Jinjun Shi, Harvard Medical School, Brigham and Women's Hospital, Boston, MA, United States.

B58 Engineering periodic shRNA delivery systems with high silencing efficacy. Connie Wu, Massachusetts Institute of Technology, Cambridge, MA, United States.

B59 Mathematical model of oxygen transport in tuberculosis granulomas. Meenal Datta, Massachusetts General Hospital, Boston, MA, United States.

B60, PR02 Implantable microdevice for in-situ precision medicine. Oliver Jonas, Brigham & Women's Hospital, Boston, MA, United States.

B61 Intratumoral oxygen gradients mediate sarcoma cell invasion. Daniel Lewis, Johns Hopkins University, Baltimore, MD, United States.

B62 Role of the blood microenvironment in the upregulation of oncoproteins in circulating pancreatic cancer cells. Owen McCarty, Oregon Health & Science University, Portland, OR, United States.