B01 A novel murine platform for genetic-driven translational prostate cancer research. Marco Bezzi\textsuperscript{1}, Ioannis Vlachos\textsuperscript{1}, Meredith Omer\textsuperscript{2}, Caitlin A. Mitchell\textsuperscript{2}, John Clohessy\textsuperscript{1}, Pier Paolo Pandolfi\textsuperscript{1}. \textsuperscript{1}Harvard Medical School-Beth Israel Deaconess Medical Center, Boston, MA, \textsuperscript{2}Beth Israel Deaconess Medical Center, Boston, MA.

B02 An analytical method for solving 3-strategy evolutionary games in cancer. Patrick J. Ellsworth\textsuperscript{1}, Artem Kaznatcheev\textsuperscript{2}, Jacob G. Scott\textsuperscript{3}. \textsuperscript{1}Case Western Reserve University School of Medicine, Cleveland, OH, \textsuperscript{2}University of Oxford, Oxford, United Kingdom, \textsuperscript{3}Translational Hematology and Oncology Research Cleveland Clinic, Cleveland, OH.

B03 Systemic dynamics of multiple metastases during adaptive therapy. Jill A. Gallaher, Alexander R.A. Anderson. Moffitt Cancer Center, Tampa, FL.

B04 Developing adaptive therapy to suppress the evolution of treatment resistance in high-grade serous ovarian cancer. Helen Hocking\textsuperscript{1}, Weini Huang\textsuperscript{2}, Stephen Metcalf\textsuperscript{1}, Eszter Lakatos\textsuperscript{1}, Maximilian Mossner\textsuperscript{1}, Trevor Graham\textsuperscript{1}, Michelle Lockley\textsuperscript{1}. \textsuperscript{1}Barts Cancer Institute, London, United Kingdom, \textsuperscript{2}Queen Mary University of London, London, United Kingdom.

B05 Modeling phenotypic heterogeneity towards evolutionary inspired osteosarcoma therapy. Elliot J. Kahen, Darcy Welch, Damon Reed. Moffitt Cancer Center, Tampa, FL.

B06 Patient-specific adaptive therapies for metastatic melanoma. Eunjung Kim\textsuperscript{1}, Joel Brown\textsuperscript{2}, Zeynep Eroglu\textsuperscript{2}, Alexander Anderson\textsuperscript{2}. \textsuperscript{1}Chungnam National University, Daejeon, Korea, \textsuperscript{2}Moffitt Cancer Center, Tampa, FL.

B07 Using antagonistic pleiotropy to design a chemotherapy-induced evolutionary trap. Kevin H. Lin\textsuperscript{1}, Justine C. Rutter\textsuperscript{1}, Abigail Xie\textsuperscript{1}, Emily Winn\textsuperscript{2}, Bryann Pardieu\textsuperscript{3}, Reinaldo Dal Bello\textsuperscript{3}, Raphael Itzykson\textsuperscript{3}, Yeong-Ran Ahn\textsuperscript{1}, Grace R. Anderson\textsuperscript{1}, Lorin Crawford\textsuperscript{2}, Alexandre Puissant\textsuperscript{3}, Kris C. Wood\textsuperscript{4}. \textsuperscript{1}Duke University, Durham, NC, \textsuperscript{2}Brown University, Providence, RI, \textsuperscript{3}Institut de Recherche Saint Louis, Paris, France.

B08 Redefining therapy regimens for triple-negative breast cancer: Exploiting the epigenetic effects of eribulin action. Meisam Bagheri, Gadisti Aisha Mohamed, Nevena B. Ognjenovic, Diwakar R. Pattabiraman. Dartmouth College, Hanover, NH.

B09 Translation evolutionary concepts of extinction and adaptive therapy in newly diagnosed, metastatic rhabdomyosarcoma. Damon Reed\textsuperscript{1}, Jonathan Metts\textsuperscript{2}, Matteo Trucco\textsuperscript{3}, Lars Wagner\textsuperscript{4}, Michael Isakoff\textsuperscript{5}, Masanori Hayashi\textsuperscript{6}, Ryan Roberts\textsuperscript{7}, Rikesh Makanji\textsuperscript{8}, Robert Gatenby\textsuperscript{1}, Joel Brown\textsuperscript{1}. \textsuperscript{1}Moffitt Cancer Center, Tampa, FL, \textsuperscript{2}Johns Hopkins All Children's Hospital, St. Petersburg, FL, \textsuperscript{3}Cleveland Clinic,
Cleveland, OH, 4Duke University, Durham, NC, 5University of Connecticut, Hartford, CT, 6University of Colorado, Denver, CO, 7Nationwide Children's Hospital, Columbus, OH.

**B10 Enabling evolutionary therapy through evolutionary control: Timescales, trajectories, and outcomes.** Shamreen Iram1, Emily Dolson2, Joshua Chiel1, Julia Pelesko3, Nikhil Krishnan1, Ozenc Gungor1, Benjamin Kuznets-Speck1, Sebastian Defner3, Efe Ilker4, Jacob G. Scott5, Mike Hinczewski1. 1Case Western Reserve University, Cleveland, OH, 2Cleveland Clinic, Cleveland, OH, 3University of Maryland, Baltimore, MD, 4Institute Curie, Paris, France.

**B11 Nanotherapeutic targeting of MEK and FGFR1 inhibitors mitigates drug toxicities and resistance.** Ramya Sridharan1, Janki Shah2, Yosef Shamay3, Danile A Heller2. 1Weill Cornell University, Memorial Sloan Kettering Cancer Center, New York, NY, 2Memorial Sloan Kettering Cancer Center, New York, NY, 3Technion-Israel Institute of Technology, Haifa, Israel.

**B12 Cost or no cost? The role of cost of resistance in adaptive cancer therapy.** Maximilian Strobl1, Jeffrey West2, Mehdi Damaghi2, Robert Gillies2, Robert Wenham2, Philip Maini1, Alexander Anderson2. 1University of Oxford, Oxford, Oxfordshire, United Kingdom, 2Moffitt Cancer Center, Tampa, FL.

**B13 Manipulating selection to slow the evolution of weak resistance and prevent the evolution of strong resistance.** Robert Vander Velde, Mark Robertson-Tessi, Alexander Anderson, Andriy Marusyk. Moffitt Cancer Center, Tampa, FL.

**B14 Antifragile Cancer Therapy.** Jeffrey West, Maximilian Strobl, Alexander R.A. Anderson. Moffitt Cancer Center, Tampa, FL, USA.

**B15 Adaptation and selection shape clonal evolution during residual disease and recurrence.** Andrea Walens1, Jiaxing Lin1, Jeremy Grisham1, Piotr Mieczkowski42, Kourosh Owzar1, James V. Alvarez1. 1Duke University School of Medicine, Durham, NC, USA, 2University of North Carolina - Chapel Hill, Chapel Hill, NC, USA.

**B16 Dynamic precision medicine (DPM): An approach to evolutionary-guided cancer therapy.** Robert A. Beckman1, Rebecca Riggins1, Mircea Podar2, Jin Y. Yang1, Matthew McCoy3, Deepak Parashar3, Chen-Hsiang Yeang4. 1Georgetown University Medical Center, Washington, DC, United States, 2Oak Ridge National Laboratory, Oak Ridge, Tennessee, United States, 3University of Warwick, Warwick, United Kingdom, 4Academia Sinica, Taipei, Taiwan.

**B17 Extensive subclonal mutational diversity in human colorectal cancer (CRC) and its significance.** Lawrence A. Loeb1, Brendan F. Kohrn1, Kaitlyn J. Loubet-Senear1, Yasmin J. Dunn1, Eun H. Ahn1, Jacintha N. O’Sullivan2, Jesse J. Salk3, Mary P. Bronner4, Robert A. Beckman5. 1University of Washington, Seattle, Washington, United States, 2University College Dublin, Dublin, Ireland, 3TwinStrand Biosciences, Seattle, Washington, United States, 4University of Utah, Salt Lake City, Utah, United States, 5Georgetown University, Washington, District of Columbia, United States.

**B18 An integrated computational and experimental framework for studying the effects of microenvironmental heterogeneity on evolutionary dynamics and therapy response.** Mina Dinh, Emily Dolson, Masahiro Hitomi, Jacob Scott. Cleveland Clinic, Cleveland, Ohio, USA.

**B19 Immune escape at the onset of human colorectal cancer.** Chandler D. Gatenbee1, Ann-Marie Baker2, Ryan O. Schenck2, Margarida P. Neves2, Sara Y. Hasan3, Pierre Martinez4, William C.H. Cross2,

**B20** Obesity promotes B-ALL pathogenesis which can be overcome through galectin inhibition. Mhyoun Lee, Jamie A. G. Hamilton, Ganesh R. Talekar, Langston Michael, Anthony J. Ross, Manali Rupji, Bhakti Dwivedi, Christopher D. Scharer, Jeremy Boss, Douglas K. Graham, Deborah DeRyckere, Christopher C. Porter. Emory University School of Medicine, Atlanta, GA, USA, Texas Health Science Center at Houston, Houston, TX, USA, Baylor College of Medicine, Houston, TX, USA, University College London Hospital, London, UK, University of British Columbia, Vancouver, BC, Canada, University of Michigan, Ann Arbor, USA, Northeastern University, Boston, MA, USA.

**B21** Multimodal integration of scRNA-seq and longitudinal treatment-response data into a mathematical model of chemotherapeutic resistance dynamics. Kaitlyn E. Johnson, Grant R. Howard, Daylin Morgan, Eric Brenner, Andrea L. Gardner, Russ Durrett, William Mo, Aziz Al'Khafaji, Angela M. Jarrett, Eduardo D. Sontag, Thomas E. Yankeelov, Amy Brock. The University of Texas, Austin, TX, USA, The Broad Institute, Cambridge, MA, USA, Northeastern University, Boston, MA, USA.

**B22** Uncovering the dynamic influence of histone lysine demethylases in therapy-induced phenotypic switching and cell heterogeneity in BRAFV600E-mutant melanoma cells. Mehwish Khalig, Mohann Manikkam, Mohammad Fallahi-Sichani. University of Michigan, Ann Arbor, USA.

**B23** Sensitivity of HER2 amplified colorectal cancer organoids at ex vivo resistance to panitumumab and trastuzumab. Jeremy Kratz, Lucas Zarling, Shujah Rehman, Sarbjeet Makkar, Dayong Zheng, Meghan Conroy, Cheri Pasch, Nicole Lassen, Kayla Lemmon, Linda Clipson, Sam Lubner, Melissa Skal, Dustin Deming. University of Wisconsin, Madison, WI, USA.

**B25** Androgen deprivation therapy promotes neuroendocrine differentiation and angiogenesis through CREB-EZH2-TSP1 pathway in prostate cancers. Yan Zhang, Dayong Zheng, Ting Zhou, Ladan Fazli, Michael Ittmann, Martin Gleave, Wenliang Li. Institute of Molecular Medicine, University of Texas Health Science Center at Houston, Houston, TX, USA, Department of Urologic Sciences and Vancouver Prostate Centre; University of British Columbia, Vancouver, BC, Canada, Department of Pathology and Immunology, Baylor College of Medicine, Houston, TX, USA.

**B26** Acquired resistance to immune checkpoint blockade by phenotypic plasticity of melanoma. Arnav Mehta, Emily J. Robitschek, Dennie T. Frederick, Alvin Shi, Ana B. Larque, Benchun Miao, Rumya S. Raghavan, Tatyana Sharova, John H. Shin, Ivan A. Chebib, Manolis Kellis, Eliezer Van Allen, Nir Hacohen, Keith T. Flaherty, Genevieve M. Boland, David Liu, Ryan J. Sullivan. Massachusetts General Hospital, Boston, MA, USA, Broad Institute of MIT and Harvard, Cambridge, MA, USA, Massachusetts Institute of Technology, Cambridge, MA, USA, Dana Farber Cancer Institute, Boston, MA, USA.

**B27** Single cell RNA sequencing of colorectal cancer organoid cells after chemotherapy reveals a trajectory for regrowth states of residual cancer cells. Kiyotaka Nakano, Takanori Fujita, Shigeto Kawai, Genta Nagae, Masami Suzuki, Hiroyuki Aburatani. Forerunner Pharma Research Co., Ltd., Tokyo, Japan, The University of Tokyo, Tokyo, Japan.
B28 Cyclin Dependent Kinase 4/6 as a therapeutic target in Glioblastoma. Oluwademilade O. Nuga, Artem Berezovsky, Kevin Nelson, Ana C deCarvalho. 1Wayne State University, School of Medicine / Henry Ford Hospital, Detroit, MI, USA, 2Henry Ford Hospital, Detroit, MI, USA, 3Henry Ford Hospital/Wayne State University School of Medicine, Detroit, MI, USA.


B31 Stress mediated translational control of cell plasticity and metastatic capacity. Amal El-Naggar, Syam Somasekhara, Yemin Wang, Martin Gleave, David Huntsman, Gregg Morin, Chris Hughes, Poul Sorensen. 1BCCRC, Vancouver, BC, Canada, 2Vancouver Prostate Centre, Vancouver, BC, Canada, 3Genome Science Centre, Vancouver, BC, Canada.

B32 Enzalutamide-induced PTH1R-mediated TGFBR2 decrease in osteoblasts contributes to resistance in prostate cancer bone metastases. Shang Su, Jingchen Cao, Xiangqi Meng, Ruihua Liu, Alexander VanderArk, Erica Woodford, Reian Zhang, Isabelle Stiver, Xiaotun Zhang, Zachary Madaj, Megan Bowman, Yingying Wu, H. Eric Xu, Bin Chen, Haiquan Yu, XiaoHong Li. 1Van Andel Institute, Grand Rapids, Michigan, United States, 2Mayo Clinic, Rochester, United States, 3Michigan State University, Grand Rapids, Michigan, United States, 4Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai, China, 5Inner Mongolia University, Hohhot, China.

B33 Inactivation of AKT-S6 signaling potentiates radiotherapy efficacy in head and neck squamous cell carcinoma. Liwei Lang, Fang Wang, Tiffany Lam, Alex Chen, Chloe Shay, Yong Teng. 1Augusta University, Augusta, USA, 2Emory University, Atlanta, USA.

B34 Co-delivery of nanoparticle-conjugated saracatinib/capivasertib overcomes the resistance of Src inhibition in oral squamous cell carcinoma. Liwei Lang, Xiangdong Zhao, Yuanping Xiong, Chloe Shay, Yong Teng. 1Augusta University, Augusta, USA, 2Emory University, Atlanta, USA.

B35 Live cell gene-essentiality assay reveals cancer cells can adapt to autophagy inhibition via upregulated NRF2 signaling and mitochondrial fusion. Christina G. Towers, Brent E. Fitzwalter, Darya K. Wodtzi, Dan Regan, Michael J. Morgan, Andrew Goodspeed, James Costello, Katharine R. Smith, Chang-wei Liu, Cecilia Caino, Daniel Gustafson, Andrew Thorburn. 1University of Colorado AMC, Aurora, CO, USA, 2Colorado State University, Fort Collins, CO, USA.

B37 **Modeling the evolution of ploidy in a resource restricted environment.** Gregory Kimmel¹, Jill Barnholtz-Sloan², Philipp Altrock¹, Noemi Andor¹. ¹Integrated Mathematical Oncology, Moffitt Cancer Center, Tampa, Florida, USA, ²Case Comprehensive Cancer Center and Cleveland Institute for Computational Biology, Case Western Reserve University School of Medicine, Cleveland, Ohio, USA.

B39 **Group selection and habitats to stratify DCIS progression.** Mehdi Damaghi¹, Hidetoshi Mori², Alexander D Borowsky³, Robert J Gillies¹. ¹Moffitt Cancer Center, Tampa, Florida, USA, ²UC Davis, School of Veterinary Medicine, Davis, California, USA, ³UC Davis, School of Medicine, Pathology and Laboratory Medicine, Davis, California, USA.

B40 **Impact of cancer associated fibroblast mediated stromal protection on evolution of resistance to targeted therapies in NSCLC.** Bina Desai¹, Anna Miller², David Basanta², Andriy Marusyk². ¹Moffitt Cancer Center/University of South Florida, Tampa, Florida, USA, ²Moffitt Cancer Center, Tampa, Florida, USA.

B41 **Tracing the origin and evolution of intestinal metaplasia in the chronically inflamed stomach.** William Waddingham¹, Will Cross¹, Kit Curtius², Khaled Dhawas³, Mohammadi Borzoueh³, Andrew Jenkinson¹, David Graham³, Matthew Banks³, Shigeki Sekine⁴, Marnix Jansen¹. ¹UCL Cancer Institute, London, UK, ²Barts Cancer Institute, London, UK, ³UCLH NHS Trust, London, UK, ⁴National Cancer Center Hospital, Tokyo, Japan.

B42 **Investigating aneuploidy in inflammatory bowel disease-associated cancer evolution.** Blake A. Johnson, Yi Dong, Taibo Li, Rong Li. Johns Hopkins School of Medicine Center for Cell Dynamics, Baltimore, MD, USA.

B43 **Modeling the bone ecosystem and environmental selection in multiple myeloma.** Anna K. Miller, Ryan T. Bishop, Conor C. Lynch, David Basanta. H. Lee Moffitt Cancer Center & Research Institute, Tampa, FL, USA.

B44 **Robustness and performance trade-offs in reward models during reinforcement learning of optimized personalized chemotherapy.** Derek S. Park¹, Philip K. Maini², Michael B. Bonsall², Alexander R. A. Anderson¹. ¹H. Lee Moffitt Cancer Center, Tampa, FL, USA, ²University of Oxford, Oxford, United Kingdom.

B45 **Understanding how age-dependent inflammation can lead to oncogenic adaptation in lung cancer.** Catherine Pham-Danis, Hannah Scarborough, Nathaniel Little, Travis Nemkov, Jessica Christenson, Nicole Spoelstra, Angelo D’alessandro, Jennifer Richer, Kirk Hansen, James DeGregori. University of Colorado, Anschutz Medical Campus, Aurora, CO, USA.

B46 **Untangling the complex interplay between cancer metabolism and immune predation using evolutionary principles.** Jeffrey West, Casey Adam, Diego Montoya, Mark Robertson-Tessi, Alexander Anderson. Moffitt Cancer Center, Tampa, FL, USA.

B47 **Roles for intracellular pH heterogeneity in cancer cell behaviors.** Julia Spear, Katharine A. White. University of Notre Dame, South Bend, IN, USA.