Sunday, October 14

6:00 p.m.-6:30 p.m.	**WELCOME** Salons I-IV, Third Floor
6:00 p.m.-6:15 p.m.	**Welcome** Margaret Foti, American Association for Cancer Research, Philadelphia, PA
6:15 p.m.-6:30 p.m.	**Conference overview** Phillip A. Sharp, David H. Koch Institute for Integrative Cancer Research at MIT, Cambridge, MA

6:30 p.m.-8:00 p.m.	**KEYNOTE LECTURES** Salons I-IV, Third Floor
6:30 p.m.-7:15 p.m.	**Detection of cancer with circulating nucleic acids using large data sets and machine learning-based classification** Richard Klausner, Mindstrong Health, Palo Alto, CA
7:15 p.m.-8:00 p.m.	**Title to be announced** Aviv Regev, Massachusetts Institute of Technology, Cambridge, MA

8:00 p.m.-9:30 p.m.	**OPENING RECEPTION** Atrium, Lobby Level

Monday, October 15

7:00 a.m.-8:00 a.m.	**BREAKFAST** Salon I-IV Foyer, Third Floor

8:00 a.m.-10:00 a.m.	**PLENARY SESSION 1: PREDICTING THE GENETIC/ENVIRONMENTAL CAUSES OF CANCER** Salons I-IV, Third Floor
8:00 a.m.-8:30 a.m.	**The fourth revolution in cancer research: From phenotype to molecular biology to omics to data science** Alan Bernstein, Canadian Institute for Advanced Research (CIFAR), Toronto, ON, Canada
8:30 a.m.-9:00 a.m.	**Models of pancreatic cancer risk** Alison P. Klein, Johns Hopkins Sidney Kimmel Comprehensive Cancer Center, Baltimore, MD

CONFERENCE PROGRAM

9:00 a.m.-9:30 a.m.	**The challenge of characterizing cancer susceptibility** Stephen J. Chanock, National Cancer Institute, Rockville, MD
9:30 a.m.-10:00 a.m.	**Title to be announced** Anna Goldenberg, University of Toronto, Toronto, ON, Canada
10:00 a.m.-10:30 a.m.	**BREAK** Salon I-IV Foyer, Third Floor
10:30 a.m.-12:00 p.m.	**PLENARY SESSION 2: PREDICTING CANCER PHENOTYPE THROUGH IMAGES** Salons I-IV, Third Floor
10:30 a.m.-11:00 a.m.	**Title to be announced** Josephine Bunch, National Physical Laboratory, Middlesex, United Kingdom
11:00 a.m.-11:30 a.m.	**Assignment of surgical margins with PARP imaging agents in the oral cavity** Thomas Reiner, Memorial Sloan Kettering Cancer Center, New York, NY
11:30 a.m.-12:00 p.m.	**Rethinking prevention and early diagnostics with deep learning** Regina Barzilay, MIT Computer Science and Artificial Intelligence Laboratory, Cambridge, MA
12:00 p.m.-2:00 p.m.	**LUNCH ON OWN / FREE TIME**
2:15 p.m.-4:15 p.m.	**PLENARY SESSION 3: PREDICTING CANCER PHENOTYPE THROUGH HISTOLOGY AND PATHOLOGY** Salons I-IV, Third Floor
2:15 p.m.-2:45 p.m.	**Predicting cancer phenotype through histology and pathology** Thomas J. Fuchs, Memorial Sloan Kettering Cancer Center, New York, NY
2:45 p.m.-3:15 p.m.	**Machine learning approaches to annotate pathology images with high-dimensional cellular state information** Barbara E. Engelhardt, Princeton University, Princeton, NJ
3:15 p.m.-3:45 p.m.	**Bringing it all together: AI-powered pathology for immuno-oncology** Andrew H. Beck, PathAI, Cambridge, MA
3:45 p.m.-4:15 p.m.	**Title to be announced** Dana Pe'er, Memorial Sloan Kettering Cancer Center, New York, NY

CONVERGENCE: ARTIFICIAL INTELLIGENCE, BIG DATA, AND PREDICTION IN CANCER

4:30 p.m.-5:10 p.m.	**SHORT TALKS FROM PROFFERED PAPERS SESSION 1** Salons I-IV, Third Floor
4:30 p.m.-4:40 p.m.	**Computed tomography textures machine learning classifiers predict response to immunotherapy in patients with lung cancer*** Harini Veeraraghavan, Memorial Sloan Kettering Cancer Center, New York, NY
4:40 p.m.-4:50 p.m.	**Identification of relevant alterations in cancer using topologic data analysis*** Pablo Camara, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA
4:50 p.m.-5:00 p.m.	**Systematic network-based analysis reveals novel molecular subtypes conserved in multiple pancreatic cancer cohorts and at the single-cell level*** Pasquale Laise, Columbia University, New York, NY
5:00 p.m.-5:10 p.m.	**An integrative genetic epidemiologic approach to analysis of multiomics data identifies low- and medium-risk susceptibility genes for breast cancer*** Roxana Moslehi, University at Albany, Albany, NY
5:30 p.m.-7:30 p.m.	**POSTER SESSION A / RECEPTION** Atrium, Lobby Level
7:30 p.m.-	**EVENING ON OWN / FREE TIME**

Tuesday, October 16

7:00 a.m.-8:00 a.m.	**BREAKFAST** Salon I-IV Foyer, Third Floor
8:00 a.m.-10:00 a.m.	**PLENARY SESSION 4: PREDICTING CANCER RESPONSE USING PATIENT-CENTRIC DATA PLATFORMS** Salons I-IV, Third Floor
8:00 a.m.-8:30 a.m.	**Partnering with patients to advance cancer research** Nikhil Wagle, Dana-Farber Cancer Institute, Boston, MA
8:30 a.m.-9:00 a.m.	**A multiscale, omic, and image view of metastatic breast cancer** Joe W. Gray, Oregon Health & Science University, Portland, OR
9:00 a.m.-9:30 a.m.	**Emerging opportunities at the intersection of computational oncology and precision cancer medicine** Eliezer M. Van Allen, Dana-Farber Cancer Institute, Boston, MA
9:30 a.m.-10:00 a.m.	**The reality of complexity when using knowns to query unknowns: From yeast and omics to humans and forecasting symptom transitions** Stephen M. Friend, Sage Bionetworks, Seattle, WA

Short talk from proffered abstract

CONFERENCE PROGRAM

10:00 a.m.-10:30 a.m.   **BREAK**
Salon I-IV Foyer, Third Floor

10:30 a.m.-12:30 p.m.   **PLENARY SESSION 5: PREDICTING CANCER RESPONSE TO PRECISION THERAPY**
Salons I-IV, Third Floor

10:30 a.m.-11:00 a.m.   **Heterogeneity and evolution of gliomas**
Raul Rabadan, Columbia University Medical Center, New York, NY

11:00 a.m.-11:30 a.m.   **Defining a cancer dependency map**
William C. Hahn, Dana-Farber Cancer Institute, Boston, MA

11:30 a.m.-12:00 p.m.   **Identification of breast cancer drivers and therapy resistance mechanisms in mouse models**
Jos Jonkers, Netherlands Cancer Institute, Amsterdam, Netherlands

12:00 p.m.-12:30 p.m.   **Title to be announced**
Alice T. Shaw, Massachusetts General Hospital Cancer Center, Boston, MA

12:30 p.m.-2:30 p.m.   **LUNCH ON OWN / FREE TIME**

1:45 p.m.-2:30 p.m.   **SPECIAL SESSION: NEW FUNDING OPPORTUNITIES FROM THE NCI CENTER FOR CANCER TRAINING**
Salons I-IV, Third Floor

Michele McGuirl, Center for Cancer Training, National Cancer Institute, Bethesda, MD

A new NCI funding opportunity is expected to be published in late 2018 for early-stage postdocs who wish to pursue careers as independent cancer researchers, and those in data and population sciences are especially encouraged to apply. Mentors and potential applicants (including international students and postdocs) are invited to learn more about this new pilot program and other funding opportunities offered by the NCI.

2:45 p.m.-4:45 p.m.   **PLENARY SESSION 6: PREDICTING THE IMPACT OF EARLY INTERVENTION IN CANCER**
Salons I-IV, Third Floor

2:45 p.m.-3:15 p.m.   **RNA-based elucidation of pharmacologically actionable dependencies in human malignancies**
Andrea Califano, Columbia University, New York, NY

3:15 o.m.-3:45 p.m.   **Title to be announced**
Franziska Michor, Dana-Farber Cancer Institute, Boston, MA

3:45 p.m.-4:15 p.m.	**Making hay of needles: Connecting clinical and physical parameters in the search for early cancer** Imran S. Haque, Freenome, South San Francisco, CA
4:15 p.m.-4:45 p.m.	**The convergence of data streams for pancreatic cancer earlier detection** Brian M. Wolpin, Dana-Farber Cancer Institute, Boston, MA

4:45 p.m.-5:15 p.m.	**SHORT TALKS FROM PROFFERED PAPERS SESSION 2** Salons I-IV, Third Floor
4:45 p.m.-4:55 p.m.	**Incorporating breast anatomy in radiomic machine learning for breast cancer risk estimation with digital mammograms*** Aimilia Gastounioti, University of Pennsylvania, Philadelphia, PA
4:55 p.m.-5:05 p.m.	**DeepAbstractor: A scalable deep learning framework for automated information extraction from free-text pathology reports*** Georgia Tourassi, Oak Ridge National Laboratory, Oak Ridge, TN
5:05 p.m.-5:15 p.m.	**Mammogram-derived texture features and risk of breast cancer*** Oana A. Zeleznik, Brigham and Women's Hospital and Harvard Medical School, Boston, MA

5:15 p.m.-7:15 p.m.	**POSTER SESSION B / RECEPTION** Atrium, Lobby Level

7:15 p.m.-	**EVENING ON OWN / FREE TIME**

Wednesday, October 17

7:00 a.m.-8:00 a.m.	**BREAKFAST** Salon I-IV Foyer, Third Floor

8:00 a.m.-10:00 a.m.	**PLENARY SESSION 7: PREDICTING IMMUNE RESPONSE TO CANCER** Salons I-IV, Third Floor
8:00 a.m.-8:30 a.m.	**Immunotherapy-induced immune responses to pancreatic cancer** Elizabeth M. Jaffee, Johns Hopkins Sidney Kimmel Comprehensive Cancer Center, Baltimore, MD
8:30 a.m.-9:00 a.m.	**Multi-omic, dynamic data clouds for early detection of cancer or cancer recurrence** James R. Heath, Institute of Systems Biology, Seattle, WA

Short talk from proffered abstract

CONFERENCE PROGRAM

9:00 a.m.-9:30 a.m.   **The predictive value of the pre-existing immune contexture and Immunoscore**
Jerome Galon, INSERM UMRS1138, Cordeliers Research Center, Paris, France

9:30 a.m.-10:00 a.m.   **Identifying and tracking tumor-specific T-cell clones**
Harlan Robins, Adaptive Biotechnologies Corporation, Seattle, WA

10:00 a.m.-10:15 a.m.   **BREAK**
Salon I-IV Foyer, Third Floor

10:15 a.m.-12:15 p.m.   **PLENARY SESSION 8: PREDICTING CANCER STATUS BY METABOLIC CHANGES**
Salons I-IV, Third Floor

10:15 a.m.-10:45 a.m.   **Metabolic modeling of single-cell RNA-Seq reveals cell-to-cell metabolic heterogeneity and actionable targets in autoimmunity**
Nir Yosef, UC Berkeley Center for Computational Biology, Berkeley, CA

10:45 a.m.-11:15 a.m.   **Metabolic reprogramming in human tumors in vivo**
Ralph J. DeBerardinis, UT Southwestern Medical Center, Dallas, TX

11:15 a.m.-11:45 a.m.   **Leveraging metabolic limitations of tumor growth to treat cancer**
Matthew G. Vander Heiden, David H. Koch Institute for Integrative Cancer Research at MIT, Cambridge, MA

11:45 a.m.-12:15 p.m.   **Urea cycle dysregulation, emerging pyrimidines mutation bias, and enhanced response to immunotherapy in cancer**
Eytan Ruppin, National Cancer Institute, Bethesda, MD

12:15 p.m.-12:30 p.m.   **CLOSING REMARKS**
Salons I-IV, Third Floor

Phillip A. Sharp, David H. Koch Institute for Integrative Cancer Research at MIT, Cambridge, MA

William C. Hahn, Dana-Farber Cancer Institute, Boston, MA

12:30 p.m.   **DEPARTURE**