Wednesday, November 2

6:15 p.m.-8:30 p.m.	**Opening Keynote Session** Grand Salon Opera
	Welcome Remarks and Session Chairpersons: Robert G. Bristow, University Health Network Princess Margaret Hospital, Toronto, ON, Canada; **Maria Jasin,** Memorial Sloan Kettering Cancer Center, New York, NY; **Theodore S. Lawrence,** University of Michigan, Ann Arbor, MI
6:30 p.m.-7:10 p.m.	Advancing the field of mutational signatures: Mechanisms and clinical applications Serena Nik-Zainal, Wellcome Trust Sanger Sanger Institute, Cambridge, United Kingdom
7:10 p.m.-7:50 p.m.	Defects in DNA repair genes revealed by clinical sequencing of advanced cancer patients Arul M. Chinnaiyan, University of Michigan, Ann Arbor, MI
7:50 p.m.-8:30 p.m.	Targeting the DNA damage response to generate new medicines for cancer treatment Mark J. O'Connor, AstraZeneca, Cambridge, United Kingdom
8:30 p.m.-10:00 p.m.	**Welcome Reception** Soprano and Soprano Foyer

Thursday, November 3

7:00 a.m.-8:00 a.m.	**Continental Breakfast** Grand Salon Foyer
8:00 a.m.-10:00 a.m.	**Plenary Session 1: Homologous Recombination Defects** Grand Salon Opera
	Session Chairperson: Jos Jonkers, Netherlands Cancer Institute, Amsterdam, The Netherlands
8:00 a.m.-8:25 a.m.	Protecting the genome by homologous recombination: Role of the BRCA2 tumor suppressor Maria Jasin, Memorial Sloan Kettering Cancer Center, New York, NY
8:25 a.m.-8:50 a.m.	Prospective identification of vulnerabilities to DNA repair inhibitors Daniel Durocher, Lunenfeld-Tanenbaum Research Institute, Toronto, ON, Canada
8:50 a.m.-9:15 a.m.	The Fanconi anemia-BRCA pathway and cancer Toshiyasu Taniguchi, Fred Hutchinson Cancer Research Center, Seattle, WA

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9:15 a.m.-9:30 a.m.	Mechanisms of regulation of the tumor suppressor PALB2* Jean-Yves Masson, Laval University Cancer Research Center, Quebec, QC, Canada
9:30 a.m.-9:45 a.m.	Small molecules that specifically inhibit the D-loop activity of RAD51* Philip Connell, University of Chicago, Chicago, IL
9:45 a.m.-10:00 a.m.	Targeted inhibition of Rad51 by the cell-penetrating antibody 3E10* Audrey Turchick, Yale University, New Haven, CT
10:00 a.m.-10:30 a.m.	**Break** Grand Salon Foyer
10:30 a.m.-12:30 p.m.	**Plenary Session 2: Synthetic Lethality and Viability** Grand Salon Opera
	Session Chairperson: Daniel Durocher, Lunenfeld-Tanenbaum Research Institute, Toronto, ON, Canada
10:30 a.m.-10:55 a.m.	Genetic determinants of tumor development, therapy response and resistance in mouse models of BRCA-deficient breast cancer Jos Jonkers, Netherlands Cancer Institute, Amsterdam, The Netherlands
10:55 a.m.-11:20 a.m.	Synthetic viability due to BRCA2 and PARP1 loss Shyam K. Sharan, NCI-Frederick, Frederick, MD
11:20 a.m.-11:45 a.m.	Replication fork stability confers chemoresistance in BRCA-deficient cells André Nussenzweig, National Cancer Institute, Bethesda, MD
11:45 a.m.-12:00 p.m.	Mechanism for PARPi resistance: Homologous recombination without BRCA1* Yizhou Joseph He, Dana-Farber Cancer Institute, Boston, MA
12:00 p.m.-12:15 p.m.	Distinct BRCA1- and BRCA2-specific functions at stalled replication forks: Clinical implications for differences between BRCA1 and BRCA2 mutation-driven cancer* Shailja Pathania, Dana-Farber Cancer Institute, Boston, MA
12:15 p.m.-12:30 p.m.	Targeted chemotherapy for homologous repair defects (HRD) in molecularly profiled cancer patients* Joseph Paul Eder, Yale Cancer Center, New Haven, CT
12:30 p.m.-2:30 p.m.	**Free Time (Lunch on Own)**
2:30 p.m.-4:30 p.m.	**Plenary Session 3: DNA Repair Gene Mutations in Cancer Genomes** Grand Salon Opera
	Session Chairperson: Serena Nik-Zainal, Wellcome Trust Sanger Sanger Institute, Cambridge, United Kingdom

**Short talks from proffered abstracts*

2:30 p.m.-2:55 p.m.	DNA repair mutations in ovarian carcinoma and relationship to therapeutic response Elizabeth M. Swisher, University of Washington, Seattle, WA
2:55 p.m.-3:10 p.m.	Identifying factors mediating response and resistance to chemotherapy through a chemical-genetic interaction map* Sourav Bandyopadhyay, University of California, San Francisco, San Francisco, CA
3:10 p.m.-3:35 p.m.	Signatures of mutational processes in human cancer Ludmil B. Alexandrov, Los Alamos National Laboratory, Los Alamos, NM
3:35 p.m.-3:50 p.m.	APOBEC activity in cancer cells confers susceptibility to ATR inhibition* Lee Zou, Massachusetts General Hospital & Harvard Medical School, Boston, MA
3:50 p.m.-4:05 p.m.	APOBEC3A sensitizes leukemia cells to inhibitors of the replication checkpoint* Abby M. Green, The Children's Hospital of Philadelphia, Philadelphia, PA
4:05 p.m.-4:20 p.m.	Ionizing radiation-induced tumorigenesis is associated with exome-wide mutational signatures conserved in mice and humans* Jean Nakamura, University of California, San Francisco, San Francisco, CA

4:30 p.m.-5:00 p.m.	**Panel Discussion: Homologous recombination deficiency in the clinic** This panel will discuss current approaches, their limitations, and prospects for determining homologous recombination deficiency and its utility in the clinic. Grand Salon Opera
5:00 p.m.-7:30 p.m.	**Poster Session A and Reception** Soprano

Friday, November 4

7:00 a.m.-8:00 a.m.	**Continental Breakfast** Grand Salon Foyer
8:00 a.m.-10:00 a.m.	**Plenary Session 4: Replication Stress** Grand Salon Opera
	Session Chairperson: Michael B. Kastan, Duke Cancer Institute, Chapel Hill, NC
8:00 a.m.-8:25 a.m.	Poisoning cancer with oxidized nucleotides by targeting MTH1 Thomas U. Helleday, Karolinska Institute, Stockholm, Sweden
8:25 a.m.-8:50 a.m.	Replication stress in cancer pathogenesis: Mechanisms and treatment opportunities Jiri Bartek, Danish Cancer Society-Institute of Cancer Biology, Copenhagen, Denmark

**Short talks from proffered abstracts*

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8:50 a.m.-9:15 a.m.	Mechanisms of the ATR-dependent replication stress response David Cortez, Vanderbilt University Medical Center, Nashville, TN
9:15 a.m.-9:30 a.m.	Mammalian RAD52 functions in break-induced replication repair of collapsed DNA replication forks* Sotirios K. Sotiriou, University of Geneva, Geneva, Switzerland
9:30 a.m.-9:45 a.m.	Unrepaired DNA damage in mother cells leads to quiescence of daughter cells* Mansi Arora, University of Colorado, Boulder, CO
9:45 a.m.-10:00 a.m.	Identification, validation, and targeting of the mutant p53-PARP-MCM chromatin axis in triple negative breast cancer* Jill Bargonetti, City University of New York at Hunter College and The Graduate Center, New York, NY
10:00 a.m.-10:30 a.m.	**Break** Grand Salon Foyer
10:30 a.m.-12:30 p.m.	**Plenary Session 5: Exploiting Repair Defects in the Tumor Microenvironment** Grand Salon Opera
	Session Chairperson: Thomas U. Helleday, Karolinska Institute, Stockholm, Sweden
10:30 a.m.-10:55 a.m.	DNA repair, hypoxia, and prostate cancer: Progression in BRCA carriers and non-carriers Robert G. Bristow, University Health Network Princess Margaret Hospital, Toronto, ON, Canada
10:55 a.m.-11:20 a.m.	Hypoxia-induced replication stress: Causes and consequences Ester M. Hammond, University of Oxford, Oxford, United Kingdom
11:20 a.m.-11:35 a.m.	SIRT2 directs DNA-PKcs in the DNA damage response* PamelaSara E. Head, Emory University, Atlanta, GA
11:35 a.m.-11:50 a.m.	Cas9/RNA-based forward genetic screenings in mouse embryonic stem cells uncovered the role of genes mediating resistance to ATR inhibitors* Sergio Ruiz, Spanish National Cancer Research Center (CNIO), Madrid, Spain
11:50 a.m.-12:05 p.m.	Normal and neoplastic tissues with partial Hus1 impairment show hypersensitivity to cisplatin in vivo* Kelly R. Hume, Cornell University, Ithaca, NY
12:30 p.m.-3:00 p.m.	**Poster Session B and Lunch** Soprano

**Short talks from proffered abstracts*

3:00 p.m.-5:00 p.m.	**Plenary Session 6: DNA Damage Signaling** Grand Salon Opera
	Session Chairperson: Ester M. Hammond, University of Oxford, Oxford, United Kingdom
3:00 p.m.-3:25 p.m.	Non-canonical aspects of ATM and p53 signaling pathways Michael B. Kastan, Duke Cancer Institute, Chapel Hill, NC
3:25 p.m.-3:50 p.m.	Genetic analysis of chromosome break in metabolism in eukaryotic cells John H.J. Petrini, Memorial Sloan Kettering Cancer Center, New York, NY
3:50 p.m.-4:15 p.m.	PARP trapping and Schlafen 11 Yves G. Pommier, National Cancer Institute's Center for Cancer Research, Bethesda, MD
4:15 p.m.-4:40 p.m.	Phosphorylation of BRCA1 by CHK2 mediates resection activity and recruitment of BRCA2 Simon N. Powell, Memorial Sloan Kettering Cancer Center, New York, NY
4:40 p.m.-4:55 p.m.	The transcriptional repressor Slug promotes the DNA damage response* Wenhui Zhou, Tufts University School of Medicine, Boston, MA
5:00 p.m.-5:30 p.m.	**Panel Discussion: Targeting checkpoints and DNA repair defects in the clinic** This panel will discuss strategies to maintain the therapeutic ratio using inhibitors of ATR, ATM, DNA-PKcs, and other targets. The potential role of somatic mutations and the tumor microenvironment in fine-tuning these strategies will also be discussed. Grand Salon Opera
5:30 p.m.-	**Evening on Own**

Saturday, November 5

7:00 a.m.-8:00 a.m.	**Continental Breakfast** Grand Salon Foyer
8:00 a.m. -10:00 a.m.	**Plenary Session 7: Therapies Targeting Cell Cycle Checkpoints** Grand Salon Opera
	Session Chairperson: Alan D. D'Andrea, Dana-Farber Cancer Institute, Boston, MA
8:00 a.m.-8:25 a.m.	Targeting Wee1 kinase to potentiate chemoradiation in the treatment of pancreatic cancer Theodore S. Lawrence, University of Michigan, Ann Arbor, MI
8:25 a.m.-8:50 a.m.	The role of ATM in tumor and endothelial cells mediating the response of cancer to radiation therapy David G. Kirsch, Duke University Medical Center, Durham, NC

**Short talks from proffered abstracts*

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8:50 a.m.-9:15 a.m.	Using PARP inhibitors to target ATM-deficient cancers Susan P. Lees-Miller, University of Calgary, Calgary, AB, Canada
9:15 a.m.-9:40 a.m.	Targeting Chk1 Alan R. Eastman, Geisel School of Medicine at Dartmouth, Lebanon, NH
9:40 a.m.-9:55 a.m.	Somatic ERCC2 mutations, nucleotide excision repair (NER) function, and cisplatin response in muscle-invasive bladder cancer (MIBC)* Kent Mouw, Dana-Farber Cancer Institute, Boston, MA
10:00 a.m.-10:15 a.m	**Break** Grand Salon Foyer
10:15 a.m. -12:15 p.m.	**Plenary Session 8: Novel Approaches to Targeting DNA Repair** Grand Salon Opera
	Session Chairperson: Susan P. Lees-Miller, University of Calgary, Calgary, AB, Canada
10:15 a.m.-10:40 a.m.	Novel mechanisms of PARP-inhibitor resistance in tumors with defects in the Fanconi Anemia/BRCA pathway Alan D. D'Andrea, Dana-Farber Cancer Institute, Boston, MA
10:40 a.m.-11:05 a.m.	Dual functions of PARP1 in prostate cancer: mechanisms and implications for therapeutic intervention Karen E. Knudsen, Thomas Jefferson University, Sidney Kimmel Cancer Center, Philadelphia, PA
11:05 a.m.-11:30 a.m.	Exploiting the inhibition of cullin-RING-ligases in DSB repair as a therapeutic strategy Meredith A. Morgan, University of Michigan, Ann Arbor, MI
11:30 a.m.-11:45 a.m.	Targeting DNA double-strand break repair to potentiate radio- and chemo-therapy of glioblastoma* Sandeep Burma, University of Texas Southwestern Medical Center, Dallas, TX
11:45 a.m.-12:00 p.m.	A 53BP1 integrates DNA repair and p53-dependent cell fate decisions via distinct mechanisms* J. Ross Chapman, University of Oxford, Oxford, United Kingdom
12:00 p.m.-12:15 p.m.	DEK is critical for homologous recombination and its loss is synthetic lethal with DNA-PK inhibition* Eric A. Smith, Cincinnati Children's Hospital Medical Center, Cincinnati, OH
12:15 p.m.	**Departure**

**Short talks from proffered abstracts*