

An AACR Special Conference in Cancer Research  
**DNA Damage Repair: From Basic Science to Future Clinical  
Application**

*In association with the AACR Radiation Science and Medicine (RSM) Working Group*  
January 9-11, 2024 | The Mayflower Hotel | Washington, DC

**CURRENT AS OF 1/10/24**

**CONFERENCE COCHAIRS:**

Robert G. Bristow, University of Manchester, Manchester, England  
David K. Cortez, Vanderbilt University School of Medicine, Nashville, Tennessee  
Susan P. Lees-Miller, University of Calgary, Calgary, AB, Canada  
Simon N. Powell, Memorial Sloan Kettering Cancer Center, New York, New York

**\*Short-talk from Proffered Abstracts**

**TUESDAY, JANUARY 9, 2024**

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**Registration**

2:30 p.m. -7:00 p.m. | Promenade Foyer outside State Ballroom

**Welcome and Opening Keynote**

5:15 p.m. -6:00 p.m. | State Ballroom

**Welcome from Cochairs**

Susan P. Lees-Miller, University of Calgary, Calgary, AB, Canada  
Robert G. Bristow, University of Manchester, Manchester, England  
David K. Cortez, Vanderbilt University School of Medicine, Nashville,  
Tennessee

**Introduction of Keynote Speaker**

Simon N. Powell, Memorial Sloan Kettering Cancer Center, New York,  
New York

**Single strand DNA GAP accumulation as a functional biomarker for  
USP1 inhibitor sensitivity**

*CME-eligible*

Alan D. D'Andrea, Dana-Farber Cancer Institute, Boston, Massachusetts

**Plenary Session 1: Biomarkers for Radiation Sensitivity and DNA Damaging Therapeutics – A  
Holy Grail?**

*Session organized by the AACR Radiation Science and Medicine (RSM) Working Group*

6:00 p.m. -7:30 p.m. | State Ballroom

*Session chair: Fei-Fei Liu, Princess Margaret Cancer Centre*

*CME-eligible*

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### **Biomarkers for radiation sensitivity and DNA damaging therapeutics**

Fei-Fei Liu, Princess Margaret Cancer Centre, Toronto, Ontario, Canada

### **Molecular and imaging biomarkers of PARP inhibitors for small cell lung cancer**

Benjamin Lok, University of Toronto, Toronto, Ontario, Canada

### **PET imaging predictors of response to chemoradiotherapy in cervical cancer**

Julie K. Schwarz, Washington University School of Medicine in St. Louis, MO

### **Biomarkers for normal tissue toxicity - DDR genetics and beyond**

Sarah Kerns, Medical College of Wisconsin, Madison, WI

### **Panel Discussion**

Drs. Liu, Lok, Kerns, Schwarz

### **Poster Session A + Opening Reception**

7:30 p.m. -9:00 p.m. | District Ballroom

## **WEDNESDAY, JANUARY 10, 2024**

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### **Breakfast**

7:00 a.m. -8:00 a.m. | Cabinet

### **Plenary Session 2: Combination Therapy - Radiation DDR Combinations**

8:00 a.m.-9:45 a.m. | State Ballroom

*Session Chair: Simon N. Powell, Memorial Sloan Kettering Cancer Center*

*CME-eligible*

### **Multifaceted effects of DNA damage response inhibitors on radiation responses of glioblastoma and the normal brain**

Anthony Chalmers, University of Glasgow - Institute of Cancer Sciences, Glasgow, Scotland

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**Targeting the hypoxia-induced DDR to improve radiotherapy response**

Ester M. Hammond, University of Oxford, Gray Institute for Radiation Oncology and Biology, Oxford, England

**Targeting homologous recombination deficiency (HRD) using optimized ionizing radiation and drug combinations**

Simon N. Powell, Memorial Sloan Kettering Cancer Center, New York, New York

**DNA damage-induced senescence as a driver of glioblastoma recurrence\***

Sandeep Burma, UT Health Science Center at San Antonio, San Antonio, TX

**Break**

9:45 a.m.-10:15 a.m. | Promenade Foyer

**Plenary Session 3: Mutational Spectra**

10:15 a.m.-11:45 a.m. | State Ballroom

*Session chair: Marcin Imielinski, NYU Grossman School of Medicine*

*CME-eligible*

**Scars of faulty DNA repair in cancer whole genomes**

Marcin Imielinski, NYU Grossman School of Medicine, New York, New York

**Molecular archeology of cancer**

Peter Van Loo, The University of Texas MD Anderson Cancer Center, Houston, Texas

**Polymerase-based bypass of atypical UV photoproducts**

Steven A. Roberts, University of Vermont, Burlington, VT

**Keynote Lecture II**

11:45 a.m. -12:30 p.m. | State Ballroom

**Introduction of keynote speaker**

Robert G. Bristow, University of Manchester, Manchester, England

**Recent advances in mutational signatures of DNA Damage Repair and clinical implications**

*CME-eligible*

Serena Nik-Zainal, University of Cambridge, Cambridge, England

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## Lunch on own

12:30 p.m.-2:00 p.m.

## Plenary Session 4: DNA Repair Pathways

2:00 p.m.-4:00 p.m. | State Ballroom

*Session chair: Maria Jasin, Memorial Sloan Kettering Cancer Center*

*CME-eligible*

### **BRCA2 promotes genomic integrity and therapy resistance primarily through its role in homology-directed repair**

Maria Jasin, Memorial Sloan Kettering Cancer Center, New York, New York

### **Functional screens identify a role for chk1 in early nucleotide excision repair\***

Kent Mouw, Dana-Farber Cancer Institute, Boston, MA

### **Using systems approaches to interrogate DNA double strand break signaling and repair for optimal tumor cell killing**

Michael B. Yaffe, Koch Institute for Integrative Cancer Research, MIT, Cambridge, Massachusetts

### **DHX9 inhibition as a novel therapeutic for ovarian and breast cancer with loss-of-function mutations in the DNA damage repair genes BRCA1 or BRCA2\***

Jennifer Castro, Accent Therapeutics, Lexington, MA

### **Replication-coupled and canonical DNA double strand breaks are processed by distinct mechanisms**

Andre Nussenzweig, National Cancer Institute, Bethesda, Maryland

## Break

4:00 p.m. -4:30 p.m.

## Plenary Session 5: Synthetic Lethal Targets

4:30 p.m.-6:15 p.m. | State Ballroom

*Session chair: David K. Cortez, Vanderbilt University Medical Center*

*CME-eligible*

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**Drugging the DNA damage response (DDR) in the clinic: Going beyond the approved PARP inhibitors**

Timothy A. Yap, The University of Texas MD Anderson Cancer Center, Houston, TX

**SMARCAL1 is a selective dependency and a novel synthetic lethal target in ATRX/DAXX mutant ALT+ osteosarcoma and neuroblastoma\***

Lillian M. Guenther, St. Jude Children's Research Hospital, Memphis, TN

**GRB2 as a target in the BRCA2-RAD51-MRE11 axis**

John A. Tainer, MD Anderson Cancer Center, Houston, TX

**Spotlight on Proffered Talks (SITA Awardees)**

6:15 p.m. -7:15 p.m. | State Ballroom

*Session Chair: Susan P. Lees-Miller, University of Calgary*

*CME-eligible*

**Identification of DNA damage repair genes controlling the immune landscape of breast tumors via spatial functional genomics**

Prerna Suri, Icahn School of Medicine at Mount Sinai, New York, NY

**Elucidating the effect of PARP inhibitors on MMEJ-mediated DNA repair**

Raquel Ortega, University of Colorado Boulder, Boulder, CO

**The combination of TRIP13 and Aurora kinase A inhibition caused cell cycle specific DNA damage and death in Rb-deficient cancers**

Lacin Yapindi, The University of Texas MD Anderson Cancer Center, Houston, TX

**Elucidating the mechanistic role of the MRE11-NDRG1 interaction in DNA repair and chemoresistance**

Hannah Doh, Harvard Medical School, Boston, MA

**Poster Session B + Reception**

7:15 p.m. -8:45 p.m. | District Ballroom

**THURSDAY, JANUARY 11, 2024**

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**Breakfast**

7:00 a.m. -8:00 a.m. | Cabinet

**Plenary Session 6: DNA Damage-Associated Immune Responses**

**Chair and Moderator** Robert G. Bristow, University of Manchester

8:00 a.m. -9:45 a.m. | State Ballroom

*CME-eligible*

**Micronuclei are a nexus of DNA damage signaling and genomic instability**

Shane Michael Harding, UHN Princess Margaret Cancer Centre, Toronto, Ontario,  
Canada

**SMARCAL1 is a dual regulator of innate immunity and PD-L1 expression that promotes  
tumor immune evasion\***

Giuseppe Leuzzi, Columbia University Irving Medical Center, New York, NY

**A new role of altered R-loop homeostasis in radiation-induced tumor immunogenicity**

Sandra Demaria, Weill Cornell Medicine, New York, NY

**Thymidine rescues ATR kinase inhibitor-induced deoxyuridine contamination in  
genomic DNA, cell death, and type-1 interferon expression in cells treated with ATR  
kinase inhibitors.**

Christopher J. Bakkenist, University of Pittsburgh Cancer Institute, Pittsburgh,  
Pennsylvania

**Panel Discussion:** Drs. Harding, Demaria and Bakkenist

**Break**

9:45 a.m. -10:00 a.m. | Promenade Foyer

**Plenary Session 7: Replication Stress**

10:00 a.m.-11:45 a.m. | State Ballroom

*Session chair:* Agata Smogorzewska, The Rockefeller University

*CME-eligible*

**The role of RTF2 in replication and replication stress response**

Agata Smogorzewska, The Rockefeller University, New York, New York

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**Mechanistic insights into how RADX regulates RAD51 nucleoprotein filaments to maintain genome stability and control replication stress responses**

David K. Cortez, Vanderbilt University Medical Center, Nashville, Tennessee

**Understanding extrachromosomal telomere generation in ALT cancers\***

Jaewon Min, Columbia University Irving Medical Center, New York, NY

**DNAJC9-a novel regulator of the MCM complex**

Dipanjan Chowdhury, Dana-Farber Cancer Institute, Boston, MA

**Lunch (Lunch Provided)**

11:45 a.m.-12:15 p.m. | Promenade Foyer

**Plenary Session 8: Acquired resistance to DDR inhibitors**

12:15 p.m. -2:30 p.m. | State Ballroom

*Session chair: Susan P. Lees-Miller, University of Calgary*

*CME-eligible*

**Understanding and overcoming resistance to PARP inhibitors in cancer therapy**

Jos M. M. Jonkers, Netherlands Cancer Institute, Amsterdam, The Netherlands

**Novel role of glycogen synthase kinase-3 $\beta$  in determining cancer cell response to PARPi through regulation of 53BP1 function\***

Fen Xia, University of Arkansas for Medical Sciences, Little Rock, AK

**DNA repair inhibitor and immunologic strategies for reversal of PARP inhibitor resistance**

Geoffrey I. Shapiro, Harvard Medical School, Boston, MA

**Enhancing radiation-induced anti-tumoral immune responses with PARP inhibitors in pancreatic cancer from laboratory studies to clinical trials**

Meredith A. Morgan, University of Michigan, Ann Arbor, MI

**Closing Remarks**

2:30 p.m. | State Ballroom

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