An AACR Virtual Special Conference in Cancer Research
Radiation Science and Medicine
In association with the AACR Radiation Science and Medicine Working Group
March 2-3, 2021 | Virtual

Conference Cochair:
Mary Helen Barcellos-Hoff, University of California, San Francisco, San Francisco, CA
Charles G. Drake, Janssen Research and Development, Spring House, PA
David R. Gius, Mays Cancer Center UT Health San Antonio, San Antonio, TX
Ester M. Hammond, University of Oxford, Oxford, United Kingdom
Conchita Vens, The Netherlands Cancer Institute, Amsterdam, Netherlands

All session times are U.S. Eastern Standard Time (EST)
TUESDAY, MARCH 2, 2021

10:00 a.m.-10:40 a.m.  Welcome and Opening Keynote Lecture
10:00 a.m.-10:10 a.m.  Welcome from Cochairs
10:10 a.m.-10:40 a.m.  Keynote Lecture
   Genomic architecture and targets in hypoxic tumors
   Robert G. Bristow, University of Manchester, Manchester, United Kingdom
10:40 a.m.-10:55 a.m.  Break
10:55 a.m.–12:25 p.m.  Plenary Session 1 Microenvironment
Session Chair: Conchita Vens, The Netherlands Cancer Institute, Amsterdam, Netherlands
   10:55 a.m.-11:20 a.m.  Microenvironmental regulation of glioblastoma radioresistance
   Philip J. Tofilon, National Cancer Institute, Bethesda, MD
   11:20 a.m.-11:45 a.m.  Oxygen dependent resistance to PARP inhibitors
   Amato Giaccia, University of Oxford, Oxford, United Kingdom
   11:45 a.m.-12:00 p.m.  Angiotensin II receptor blockers modify the solid tumor microenvironment and improve radiation therapy response*
   Kevin L. Bennewith, BC Cancer, Vancouver, BC, Canada
   12:00 p.m.-12:25 p.m.  The impact of gut microbiota on the radiotherapy-induced antitumor immune response
   Andrea Facciabene, University of Pennsylvania, Philadelphia, PA
12:25 p.m.–12:40 p.m.  Break
12:40 p.m.– 2:10 p.m.  Plenary Session 2 Exploiting the DNA Damage Response I
Session Chair: Amato Giaccia, University of Oxford, Oxford, United Kingdom
   12:40 p.m.-1:05 p.m.  Base excision repair and cancer
*Proffered Talk from Abstracts
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Joann B. Sweasy, University of Arizona Cancer Center, Tucson, AZ

1:05 p.m.-1:30 p.m. Enhancing the therapeutic ratio for glioblastoma by combining radiation therapy with PARP inhibitors
Anthony J. Chalmers, University of Glasgow, Glasgow, United Kingdom

1:30 p.m.-1:45 p.m. SIRT2 promotes BRCA1-BARD1 heterodimerization through deacetylation*
David S. Yu, Emory University School of Medicine, Atlanta, GA

1:45 p.m.-2:10 p.m. Exploiting DNA repair defects in head and neck squamous cell carcinoma
Conchita Vens, The Netherlands Cancer Institute, Amsterdam, The Netherlands

2:10 p.m.–2:25 p.m. Break

2:25 p.m.– 4:20 p.m. Plenary Session 3 Exploiting the DNA Damage Response II
Session Chair: Charles G. Drake, Janssen Research and Development, Spring House, PA

2:25 p.m.-2:50 p.m. Etiology of chromosomal rearrangements, and other DNA double-strand break repair outcomes
Jeremy Stark, City of Hope, Duarte, CA

2:50 p.m.-3:15 p.m. TGFβ regulation of DNA repair across cancer types predicts response to genotoxic therapies
Mary Helen Barcellos-Hoff, University of California, San Francisco

3:15 p.m.-3:30 p.m. Radiosensitization by targeting the NPM1/RAD51 axis*
Michael L. Freeman, Vanderbilt University School of Medicine, Nashville, TN

3:30 p.m.-3:55 p.m. Deciphering DNA end resection at DSBs
Dipanjan Chowdhury, Dana-Farber Cancer Institute, Boston, MA

3:55 p.m.-4:20 p.m. Translation to clinical trials: Are we shooting the right arrows at the target?
Ricky Sharma, Varian Medical Systems, Palo Alto, CA
(Not eligible for CME credit)

4:20 p.m.–4:35 p.m. Break

4:35 p.m.– 6:05 p.m. Plenary Session 4 Immunotherapy
Session Chair: Ralph Weichselbaum, University of Chicago, Chicago, IL

*Proffered Talk from Abstracts
**WEDNESDAY, MARCH 3, 2021**

**10:00 a.m.–11:55 a.m.** Plenary Session 5 Hypoxia  
*Session Chair: Robert G. Bristow, University of Manchester, Manchester, United Kingdom*

- **10:00 a.m.-10:25 a.m.** Hypoxia-induced SETX links replication stress with the unfolded protein response  
  Ester M. Hammond, University of Oxford, Oxford, United Kingdom

- **10:25 a.m.-10:50 a.m.** Metabolic deregulation drives a redox vulnerability in pancreatic cancer  
  Marianne Koritzinsky, Princess Margaret Cancer Centre, Toronto, ON, Canada

- **10:50 a.m.-11:05 a.m.** Adenosine signaling and radiation-induced immunosuppressive changes to the tumor microenvironment*  
  Catherine S. Spina, Columbia University Irving Medical Center, New York, NY

- **11:05 a.m.-11:30 a.m.** Chromatin and gene transcription in hypoxia  
  Sonia Rocha, University of Liverpool, Liverpool, United Kingdom

- **11:30 a.m.-11:55 a.m.** Molecular landmarks of tumor hypoxia across cancer types  
  Paul Boutros, University of California Los Angeles, Los Angeles, CA

- **11:55 a.m.–12:10 p.m.** Break

- **12:10 p.m.–1:40 p.m.** Plenary Session 6 Limiting Late Effects: Physics, Biology and Genetics  
  *Session Chair: David R. Gius, Mays Cancer Center UT Health San Antonio, San Antonio, TX*

*Proffered Talk from Abstracts*
12:10 p.m.-12:35 p.m. Preclinical studies with proton FLASH radiotherapy in mice and canines: Biological effects, biophysical considerations and potential mechanisms
Constantinos Koumenis, University of Pennsylvania, Philadelphia, PA

12:35 p.m.-1:00 p.m. Optimizing stem cell niche for post-irradiation regeneration
Rob Coppes, University Medical Center Groningen, Groningen, Netherlands

1:00 p.m.-1:15 p.m. Pulsed low-dose-rate radiation (PLDR) limits pancreatic pro-tumor stroma aggravation: Pre-clinical basis for an ongoing PLDR trial*
Janusz Franco-Barraza, Fox Chase Cancer Center, Philadelphia, PA

1:15 p.m.-1:40 p.m. Predicting Radiotherapy Outcomes: Radiogenomics and risk of radiotherapy toxicity
Catharine West, University of Manchester, Manchester, United Kingdom

1:40 p.m.-1:55 p.m. Break

1:55 p.m.-3:50 p.m. Plenary Session 7 Sirtuins, Cell homeostasis and Metabolism
Session Chair: Ester M. Hammond, University of Oxford, Oxford, United Kingdom

1:55 p.m.-2:20 p.m. Lysine 68 acetylation directs MnSOD as a tetrameric detoxification complex versus a monomeric tumor promoter
David Gius, Mays Cancer Center UT Health San Antonio, San Antonio, TX

2:20 p.m.-2:45 p.m. The role of sirtuins in radiation-induced cardiac dysfunction
Carmen R. Bergom, Washington University, St. Louis, MO

2:45 p.m.-3:00 p.m. Targeting FASN improves type I interferon responses in irradiated glioblastoma*
Mara De Martino, Weill Cornell Medicine, New York, NY

3:00 p.m.-3:25 p.m. Sirt2: a tumor suppressor or promoter?
Fen Xia, University of Arkansas for Medical Sciences, Little Rock, AR

3:25 p.m.-3:50 p.m. Exploiting redox biology for selectively targeting cancer cells
Douglas R. Spitz, University of Iowa, Iowa City, IA

3:50 p.m.-4:05 p.m. Break

4:05 p.m.-5:35 p.m. Plenary Session 8 Molecular Predictions
Session Chair: Mary Helen Barcellos-Hoff, University of California, San Francisco, San Francisco, CA

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**4:05 p.m.-4:30 p.m.**

**Gaps alone kill BRCA deficient cancer cells**
Sharon Cantor, University of Massachusetts Medical School, Worcester, MA

**4:30 p.m.-4:55 p.m.**

**Dysregulated metabolic and immune pathways underlying radiation fibrosis and lymphedema**
Fei-Fei Liu, Princess Margaret Cancer Centre, Toronto, ON, Canada

**4:55 p.m.-5:10 p.m.**

**Identification and characterization of the molecular mechanisms of SCLC chemo-radiation resistance**
*Francesca Anna Carrieri, Johns Hopkins University, Baltimore, MD

**5:10 p.m.-5:35 p.m.**

**Interaction of radiotherapy and immunotherapy: Maybe not what you think**
Ralph Weichselbaum, University of Chicago Medicine, Chicago, IL

**5:35 p.m.-5:40 p.m.**

**Closing Remarks**
David R. Gius Mays Cancer Center UT Health San Antonio, San Antonio, TX

*Proffered Talk from Abstracts*