

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 Cochairs:

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 <i>Session Chair: Conchita Vens, The Netherlands Cancer Institute, Amsterdam, Netherlands</i>
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 <i>Session Chair: Amato Giaccia, University of Oxford, Oxford, United Kingdom</i>
12:40 p.m.-1:05 p.m.	Base excision repair and cancer

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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

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- 4:35 p.m.-5:00 p.m. **Differential immunological effects of carbon-ion versus photon radiation therapy**
Charles G. Drake, Janssen Research and Development, Spring House, PA
- 5:00 p.m.-5:25 p.m. **Integrating radiation therapy with immunotherapy**
Marka R. Crittenden, Earle A. Chiles Research Institute, Portland, OR
- 5:25 p.m.-5:40 p.m. **Radiation modulates hepatic siphoning of T cells to improve immunotherapy efficacy***
Michael Green, University of Michigan, Ann Arbor, MI
- 5:40 p.m.-6:05 p.m. **Strategies to enhance the immunogenicity of radiation therapy**
Silvia C. Formenti, Weill Cornell Medical College, New York, NY

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

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- 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 trail***
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 promotor?**
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

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