

Defining the Shades of Gy: Utilizing the Biological Consequences of Radiation Therapy in the Development of New Treatment Approaches

Workshop Agenda

DAY 1: September 11, 2017

- 8:30 – 8:45 am **Introduction to the NCI Workshop**
C. Norman Coleman (NCI) and Mansoor M. Ahmed (NCI)
- 8:45 – 10:15 am **SESSION I - Dose-Effect Models: What do they tell us about biology, and what do they allow us to do safely? Does comfort with them dissuade us from considering mechanisms and result in missed opportunities?**
- Chairs:** Soren Bentzen (University of Maryland) and Bhadrasain Vikram (NCI)
Discussant: Marc Mendonca (Indiana University)
Speakers: Soren Bentzen (University of Maryland), Martin Brown (Stanford University), and Philippe Lambin (Maastricht University)
- 10:30 – 12:00 pm **SESSION II - Biophysics - Why track structure from various forms of radiation? The various tissues, cells, organelles, and molecules that are hit strongly suggest that simple RBE measurements will have limitations.**
- Chairs:** Dudley Goodhead (UK) and Ceferino Obcemea (NCI)
Discussant: Stephen M. Seltzer (NIST)
Speakers: Dudley Goodhead (UK), Francis A. Cucinotta (University of Las Vegas), Jan Schuemann (Harvard University), and Lisa Carnell (NASA)
- 12:45-2:15 pm **SESSION III - RBE and the range of end points used- from organism down to the molecular level and the impact of biological perturbations as assessed in terms of dose size, dose rate, and radiation quality.**
- Chairs:** Kevin Prise (Queen's University Belfast) and Jacek Capala (NCI)
Discussant: Radhe Mohan (MD Anderson)
Speakers: Kevin Prise (Queen's University Belfast), Cläre von Neubeck (German Cancer Consortium), Jeffrey Buchsbaum (NCI), Roger Howell (Rutgers University), and Manjit Dosanjh (CERN)
- 2:30 – 4:00 pm **SESSION IV - Biomarkers and Response Predictors: How can one measure “radiation effect”?**
- Chairs:** Gary Kao (University of Pennsylvania) and Molykutty Aryankalayil (NCI)
Discussant: Deborah Citrin (NCI)

Speakers: Merriline Vedamony (NIAID), Murali Krishna (NCI, RBB), Molykutty Aryankalayil (NCI), Gary Kao (University of Pennsylvania), and Pataje Prasanna (NCI)

4:15 – 6:00 pm

SESSION V - Clinician's perspective on "dose" and desired outcome

Chairs: Quynh-Thu Le (Stanford University) and Iris Eke (NCI)

Discussant: Fei-Fei Liu (Princess Margaret)

Speakers: Bob Timmerman (University of Texas, Southwestern), Quynh-Thu Le (Stanford University), Harald Paganetti (Harvard University), and Iris Eke (NCI)

6:00 pm

Dinner Session: Philosophical considerations of changing how we use dose

Chair: C. Norman Coleman (NCI)

Speakers: Eli Glatstein (University of Pennsylvania) and Ed Halperin (New York Medical College)

DAY 2: September 12, 2017

8:00 – 9:45 am

SESSION VI - Biological consequences of clinical relevance: how can we exploit biology?

Chairs: David Kirsch (Duke University) and DeeDee Smart (NCI)

Discussant: Beverly Teicher (NCI)

Speakers: David Kirsch (Duke University), Phuoc Tran (Johns Hopkins), Amit Maity (University of Pennsylvania), and Joanne Weidhaas (UCLA)

10:00 am – 11:15 am

SESSION VII - Can we consider partial tumor volume radiotherapy in the clinic that has the proposed potential to protect normal tissue and cells and elicit intra-tumoral and distal immune attack?

Chairs: Silvia Formenti (Weill Cornell) and Jeffrey Buchsbaum (NCI)

Discussant: Joel Tepper (UNC)

Speakers: Robert J. Griffin (University of Arkansas), Xiaodong Wu (Biophysics Research Institute of America and Shanghai Proton Heavy Ion Center), Silvia Formenti (Weill Cornell), and Chandan Guha (Albert Einstein)

12:00 – 1:30 pm

SESSION VIII - What is conventional accepted wisdom of radiobiology that needs re-validation using modern tools for proper use in the clinic?

Chairs: Walter J. Curran (Emory) and Jim Mitchell (NCI)

Discussant: Daphne Haas-Kogan (Dana-Farber)

Speakers: Catherine Park (UCSF), Charles Simone (University of Maryland), David Raben (University of Colorado), Jann Sarkaria (Mayo Clinic), Dennis Hallahan (Washington University), and Tim Williams (Boca Radiation Oncology Associates)

1:30 - 2:00 pm

NEXT STEPS and FINAL DISCUSSION

Eric Bernhard (NCI), Mansoor M. Ahmed (NCI), and Norm Coleman (NCI)