

## Our Purpose

The broad theme and intent of the IRIS Symposium-2011 with its exceptional national and international speakers will focus on:

- Bringing together cross-disciplinary experts from diverse areas including systems biology, proteomics, genomics, microfluidics, artificial intelligence, automation and molecular biomechanics to further enrich the research and development of radiation biology.
- The symbiosis and integration of novel applications together with informatics expertise into the field of radiation biology.
- Identifying and discussing specific issues from biotech, -omics, trans-, computing, imaging and likewise platforms to build common analysis suite for radiation biology.
- Developing nanotherapeutic and high-throughput imaging approaches to overcome critical issues in biomarker applications and development.
- Discussing tenets of cloud computing for Radioinformatics data analyses and accessibility.
- Idea blitzing with emphasis on technology and application development for the efficient use of radiation biology data.
- Encouraging and promoting communication among scientists, educators, application developers, public health funding agencies, medical responders to further expand the field of radiation research.

Contact symposium chairman, Dr. Adarsh Ramakumar ([ramakumar@afri.usuhs.mil](mailto:ramakumar@afri.usuhs.mil)) to RSVP or learn more about these events.

## Program Committee

Symposium Chair  
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# 1st International Radioinformatics Symposium



May12–13, 2011

Sponsored by the Armed Forces  
Radiobiology Research Institute and the  
Uniformed Services University

# AGENDA

## Thursday, May 12

- 7:30 a.m. Registration
- 8:00 a.m. Welcome—*Dr. Charles L. Rice, President, USUHS*
- 8:10 a.m. Opening Remarks—*COL Mark A. Melanson, Director, AFRRRI*
- 8:20 a.m. Introduction—*Dr. Adarsh Ramakumar, Chairman, IRIS*

### Session I. Radiation Biology: The Science

Co-chairs: Drs. William F. Blakely and Carolyn J. Fisher

- 8:30 a.m. Radiation biology—From the past 50 years to the next 50 years  
*Dr. K. Sree Kumar, Principal Investigator & Senior Scientist, AFRRRI*
- 8:55 a.m. Low dose radiation research: What have we learned?  
*Dr. Noelle F. Metting, Program Manager, Radiobiology, Department of Energy, Washington, DC*
- 9:20 a.m. Radiobiological basis of radiation protection: Standards and inter-laboratory exercises for emergency preparedness  
*Dr. Ruth Wilkins, Senior Scientist-Radiobiology, Consumer and Clinical Radiation Protection Bureau, Health Canada, Ottawa, Canada*
- 9:45 a.m. Japan radiation incident: A firsthand account of managing a radiation emergency response  
*Professor Mitsuaki Yoshida, Department of Radiation Biology, Institute of Radiation Emergency Medicine, Hiroshima University, Hiroshima, Japan*
- 10:10 a.m. Break

### Session 2. 'Omics for Radiation Biology

Co-chairs: Drs. John F. Kalinich and Sanchita P. Ghosh

- 10:30 a.m. Proteomics for radiation biomarker discovery  
*Professor Harvey Pollard, Chair, Department of Anatomy, Physiology and Genetics, USUHS, Bethesda, MD*
- 10:55 a.m. Functional genomics for radiation biology: A gateway to understand cellular stress responses  
*Dr. Sally Amundson, Radiation Oncology, Center for Radiological Research, College of Physicians & Surgeons of Columbia University Medical Center, New York, NY*
- 11:20 a.m. Metabolomics for radiation biology  
*Dr. Albert Fornace, Jr., Molecular Cancer Research Chair at Lombardi Comprehensive Cancer Center; Professor, Dept. of Biochemistry and Molecular & Cellular Biology, and Dept. of Oncology, Georgetown University, Washington, DC*
- 11:45 a.m. Lunch

### Session 3. Applied Radiation Biology: Platforms & Technology

Co-chairs: Drs. Mark H. Whittall and Shilpa S. Kulkarni

- 1:00 p.m. Imageable nanoparticles for radiotherapy applications  
*Dr. William T. Phillips, Nanoparticle Imaging/Therapeutic Systems, Department of Radiology, University of Texas Health Science Center at San Antonio, San Antonio, TX*
- 1:25 p.m. Advances in translational radiation biology for improved cancer therapy and prevention from radiation exposure  
*Professor David Boothman, Associate Director for Translational Research, University of Texas Southwestern Medical Center at Dallas, Dallas, TX*

- 1:50 p.m. Radiation-induced mitotic catastrophe: Role of RNA binding proteins  
*Professor Shrikant Anant, Associate Director-Prevention and Cancer Control, Associate Dean for Research, University of Kansas School of Medicine, Kansas City, KS*
- 2:15 p.m. Development of novel therapeutic for the treatment of acute radiation syndrome  
*Dr. Ram Mandalam, President and CEO, Cellerant Therapeutics, San Carlos, CA*
- 2:40 p.m. Break

### Session 4. Artificial Intelligence and High-throughput Technologies for Radiation Biology

Co-chairs: Drs. Lynette H. Cary and MAJ Eric D. Lombardini

- 3:00 p.m. Need for infrastructure and high-throughput technologies to manage radiation data in a mass casualty  
*Dr. Gordon Livingston, Technical Director, Cytogenetic Biodosimetry Laboratory, REAC/TS, ORISE & ORAU, Oak Ridge, TN*
- 3:25 p.m. Artificial intelligence-assisted automated cytogenetics  
*Dr. Adarsh Ramakumar, Principal Investigator & Senior Bioinformatics, Biostatistics and Biomedical Analyst, AFRRRI, Bethesda, MD*
- 3:50 p.m. Novel image segmentation approaches for automated identification of chromosome abnormalities due to radiation exposure  
*Dr. Peter Rogan, Canada Research Chair, Genome Bioinformatics, Professor of Biochemistry & Computer Science, University of Western Ontario, Ontario, Canada*
- 4:15 p.m. Nanoprobes and molecular high-throughput imaging approaches in theragnostics  
*Dr. Rao Papineni, Senior Principal Investigator, Research and Development, Carestream Molecular Imaging, Woodbridge, CT*
- 4:40 p.m. Adjourn

## Friday, May 13

- 7:30 a.m. Registration
- 8:00 a.m. Welcome and Day 2 Overview—  
*Col L. Andrew Huff, Deputy Director, AFRRRI*

### Session 5. Technologies and Applications for Radiation Biology

Co-chairs: Drs. Juliann G. Kiang and CPT Ian C. Dews

- 8:15 a.m. Novel technology approaches for radiation repair  
*Professor Chandan Guha, Vice Chair, Department of Radiation Oncology, Montefiore Medical Center, Bronx, NY*
- 8:40 a.m. Predictive genomics: A post-genomic integrated approach to analyze biological signatures of radiation exposure  
*Professor Prakash Hande, Department of Physiology, Yong Loo Lin School of medicine, National University of Singapore, Singapore*
- 9:05 a.m. The advances of nanotechnology applied to radiation biology  
*Professor Sunil Krishnan, Department of Radiation Oncology, the University of Texas, MD Anderson Cancer Center, Houston, TX*

- 9:30 a.m. Microfluidics applications for protein expression analysis and molecular diagnostics  
*Dr. Seth Cohen, Senior Director, Microfluidic Applications & Support, Caliper Life Sciences, Hopkinton, MA*
- 9:55 a.m. Microfluidics and advances in technology for radiation biology  
*Professor Frederic Zenhause, Director, Center for Applied Nanobioscience and Medicine, College of Medicine Phoenix, University of Arizona, Tucson, AZ*
- 10:20 a.m. Break

### Session 6. Technologies Blitz

Co-chairs: Drs. Michael R. Landauer and LtCol Michael P. Dempsey

- 10:40 a.m. Bioelectric strategies and applications for radiation biology  
*Dr. Erik Young, Center for Radiological Research, Columbia University, New York, NY*
- 11:05 a.m. qNPA assay technology for gene expression signature development  
*Dr. Bruce Seligmann, Chief Scientific Officer, High Throughput Genomics, Tucson, AZ*
- 11:30 a.m. Tools and advanced instrumentation for radiation biology data acquisition  
*LTC Felicia Langel, VMD, PhD, Director, Biomedical Instrumentation Center, USUHS, Bethesda, MD*
- 11:55 a.m. Harnessing cloud computing for Radioinformatics  
*Dr. Ramesh Rangachar, Sr. Project Head, Intelsat, Washington, DC*
- 12:20 p.m. Lunch

### Session 7. Governing the Science of Tomorrow

Co-chairs: Drs. Pataje G.S. Prasanna and Richard Levine

- 1:40 p.m. Overview of DOE systems biology knowledgebase and initiatives  
*Dr. Susan Gregurick, Program Director, OBER/DOE, Washington, DC*
- 2:00 p.m. Overview of Biomedical Advanced Research and Development Authority (BARDA) programs  
*Dr. Richard Hatchet, Chief Medical Officer & Deputy Director, HHS/OS/ASPR/BARDA, Washington, DC*
- 2:20 p.m. Overview of NIAID's radiation/nuclear medical countermeasures development program  
*Dr. Bert Maidment, Associate Director, Product Development NIAID/NIH, Rockville, MD*
- 2:40 p.m. Overview and policy of office of assistant secretary for preparedness and response, USA  
*Dr. Maria Julia Marinissen, Director, Division of International Health Security, Office of Assistant Secretary for Preparedness and Response, HHS, Washington, DC*
- 3:00 p.m. Break
- 3:20 p.m. Panel discussion: Forming the road-map for Radioinformatics application development  
*A six-member panel of distinguished people will be announced separately. Convenor: Dr. Christopher Lissner, SD, AFRRRI*
- 5:00 p.m. Closing remarks: COL Mark A. Melanson, Director, AFRRRI
- 5:10 p.m. Vote of thanks: Dr. Adarsh Ramakumar, Chairman, IRIS

#### Points of contact:

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IRIS Officer-in-Charge: CPT Ian C. Dews ([dews@afrrri.usuhs.mil](mailto:dews@afrrri.usuhs.mil))  
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