18th Annual Midwest DNA REPAIR SYMPOSIUM

MAY 28-29, 2016
The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute Columbus, Ohio
Scientific Program

Scientific Sessions, Lunch, Poster Session and Reception:
Ohio State’s Biomedical Research Tower (BRT)
460 W. 12th Ave.
Columbus, Ohio 43210

Banquet:
The Fawcett Center
2400 Olentangy River Rd.
Columbus, Ohio 43210

Saturday, May 28, 2016

11 a.m. – 1 p.m.  Registration
Lobby, BRT

11 a.m. – Noon  LUNCH *(boxed)*
Room 105, BRT

Poster Set-up
Room 115 and Lobby, BRT

Noon – 12:15 p.m.  Welcome
Altaf Wani, PhD; and Qi-En Wang, PhD

12:15 – 1:15 p.m.  KEYNOTE SPEAKER
A New Role for Extra-nuclear ATM Linking Metabolism and Targeted Autophagy
Cheryl L. Walker, PhD, Professor and Director, Institute of Biosciences and Technology, Texas A&M Health Science Center
(Introduction: Dr. Qi-En Wang)
Platform Session I: DNA Damage/Repair Mechanism-1
(Pre-Chairs: Dr. Sukesh Bhaumik, SIU, and Qianzheng Zhu, OSU)

1:30-1:45 p.m. Investigating Role of TDP1 in Non-Homologous End Joining
Jing Li; Karin Nitis; Matthew Summerlin; John Nitis; Les Hanakahi
Department of Medicinal Chemistry and Pharmacognosy, University of Illinois
College of Pharmacy at Rockford, Rockford, IL 61107

1:45-2 p.m. Isolation and Characterization of the DNA Binding Apparatus from the Human
DNA Damage Sensing Protein XPC
Steven Shell
Department of Natural Sciences, The University of Virginia’s College at Wise, Wise,
VA 24293

2-2:15 p.m. Regulatory Mechanisms of Transcription-coupled DNA Repair
Shivani Malik+; Priyasri Chaurasia+; Rwik Sen; Jannatul Ferdoush; Shweta
Lahudkar; Geetha Durairaj; Bhawana Uprety; and Sukesh R. Bhaumik
Department of Biochemistry and Molecular Biology, Southern Illinois University
School of Medicine, Carbondale, IL-62901

2:15-2:30 p.m. Transcription-Coupled Homologous Recombination After Oxidative Damage
Leizhen Wei; Li Lan
Department of Microbiology & Molecular Genetics, University of Pittsburgh,
Pittsburgh, PA 15213

2:30 – 3 p.m. BREAK
Platform Session II: DNA Repair And Disease
(Co-Chairs: Dr. Junran Zhang, CWRU, and Erica Bell, OSU)

3-3:15 p.m.  Investigating and Targeting the DNA Repair Pathways to Enhance the Anti-cancer Activity of Topoisomerase II Inhibitors
Yilun Sun; John Nitiss
Department of Biopharmaceutical Sciences, College of Pharmacy, University of Illinois at Chicago, Rockford, IL 61107

3:15-3:30 p.m.  Androgen Receptor Signaling Regulates Survival to DNA Damage in Triple-Negative Breast Cancers
Brian D. Yard and Mohamed E. Abazeed
Department of Translational Radiation Oncology, Cleveland Clinic Taussig Cancer Center, Cleveland, OH, 44195

3:30-3:45 p.m.  Development of TDRL-X-80 Class of Compounds as a Xeroderma Pigmentosum Group A (XPA)-DNA Interaction Inhibitors for Cancer Therapy
Navnath Gavande; Pamela VanderVere-Carozza; John Turchi
Department of Medicine, Indiana University, Indianapolis, IN 46202

3:45-4 p.m.  SMARCA4/BRG1 is a Novel Prognostic Biomarker Predictive of Cisplatin-based Chemotherapy Outcomes in Resected Non-small Cell Lung Cancer
Erica Bell; Arup Chakraborty; Xiaokui Mo; Ziyan Liu; Konstantin Shilov; Simon Kirste; Petra Stegmaier; Maureen McNulty; Niki Karachaliou; Rafael Rosell; Gerold Bepler; David Carbone; Arnab Chakravarti
Department of Radiation Oncology, The Ohio State University, Columbus, OH 43210

4-4:15 p.m.  Functional Analysis of BRCA1 and BARD1 Variants in the Regulation of DNA Double-strand Break Repair and Impact on Predisposition to Hereditary Breast and Ovarian Cancer
Muhtadi Islam; Tapahsama Banerjee; Alexandra Adamovich; Cindy Lee; Lea Starita; Stan Fields; Jay Shendure; and Jeffrey D. Parvin*
Department of Biomedical Informatics, College of Medicine, The Ohio State University, Columbus, OH 43210

4:15-6:15 p.m.  POSTER SESSION
Room 105 and Lobby, BRT

6:30-7:30 p.m.  COCKTAIL HOUR
Fawcett Center

7:30 p.m.  BANQUET
Fawcett Center

Entertainment
Courtesy of Dublin Coffman String Quartet
Guozhen Xie (Violin); Wensy Xie (Violin); Emory Klann (Viola); Issac Creager (Cello)
Sunday, May 29, 2016

8:30 – 9:30 a.m  KEYNOTE SPEAKER
Ins and Outs of Base Lesion Repair
Samuel H. Wilson, MD, Principal Investigator, DNA Repair and Nucleic Acid Enzymology Group, NIEHS
(Introduction: Dr. Altaf Wani)

Platform Session III: DNA Damage/Repair Mechanism-2
(Co-Chairs: Dr. Katherine Pawelczak, NERx, and Alo Ray, OSU)

9:45-10 a.m.  Loss of DNA Polymerase Beta Prompts Premature Senescence: A Role for BER in Accelerated Aging in Down Syndrome
Aqila Ahmed; Cristine Smoczer; Diane C. Cabelof
Department of Nutrition and Food Sciences, College of Liberal Arts & Sciences, Wayne State University, Detroit, MI 48202

10-10:15 a.m.  Dynamics and Mechanism of Cyclobutane Pyrimidine Dimer Repair by Class II DNA Photolyase and the Role of Adenine in Repair
Meng Zhang; Dongping Zhong
Department of Physics, Department of Chemistry and Biochemistry, The Ohio State University, Columbus, OH 43210

10:15-10:30 a.m.  USP10 Deubiquitinates and Stabilizes MSH2 to Regulate Cellular Sensitivity to DNA Damage
Mu Zhang; Chen Hu; Wenlong Bai; Guo-Min Li; Gerold Bepler; Xiaohong Zhang
Department of Oncology, Karmanos Cancer Institute, Wayne State University, Detroit, MI 48201

10:30-10:45 a.m.  Chemical Enhancement of CRISPR/Cas9 Mediated Site-specific Genome Engineering
Katherine Pawelczak¹, Navnath Gavande², Pamela VanderVere-Carozza², Tyler Vernon² and John Turchi¹²
¹NERx Biosciences Inc. Indianapolis, IN 46202, ²Department of Medicine, Indiana University School of Medicine, Indianapolis, IN 46202

10:45-11:15 a.m.  BREAK
Platform Session IV: DNA Damage Response/Signaling
(Co-Chairs: Dr. Youwei Zhang, CWRU, and Vincenzo Coppola, OSU)

11:15-11:30 a.m.  
**ATR Kinase Inhibition Protects Non-cycling Cells from the Lethal Effects of DNA Damage and Transcription Stress**  
*Michael Kemp; Aziz Sancar*  
Department of Pharmacology and Toxicology, Wright State University, Dayton, OH

11:30-11:45 a.m.  
**Arsenic Exposure Disrupts the Normal Function of the FA/BRCA Repair Pathway**  
*Jana Peremartí1; Facundo Ramos1; Ricard Marcos1,2; Alba Hernández1,2,§*  
1Grup de Mutagènesi, Departament de Genètica i de Microbiologia, Facultat de Biociències, Universitat Autònoma de Barcelona, Bellaterra, Spain; 2CIBER Epidemiologia y Salud Pública, ISCCIII, Spain

11:45 a.m.-Noon  
**Role of ATR in Non-DNA Damage Stress Responses (NDDR): A Novel Function in Suppressing Ca2+ Overload-induced PARP1-mediated Necrosis**  
*Hui Wang; Benjamin A. Hilton; Brian M. Cartwright; Henry Gong; Phillip R. Musich and Yue Zou*  
Department of Biomedical Sciences, J.H. Quillen College of Medicine, East Tennessee State University, Johnson City, Tennessee 37614

Noon-12:15 p.m.  
**ATR- and ATM-mediated DNA Damage Response is Dependent on Excision Repair Assembly During G1 but not in S Phase of Cell Cycle**  
*Alo Ray; Altaf A. Wani*  
Department of Radiology, The Ohio State University, Columbus, OH 43210

12:10-12:30 p.m.  
**Mechanisms of Chk1 Activation by DNA Damage**  
*Youwei Zhang*  
Department of Pharmacology, Case Western Reserve University, Cleveland, OH 44106

12:30-1 p.m.  
**AWARDS PRESENTATION**

1 p.m.  
**ADJOURN**