

**Spring 2017 Retreat**  
**Center for Molecular Signaling and Center for Redox Biology and Medicine**  
**Wake Downtown Auditorium; 4<sup>th</sup> floor**

**8:30 Continental Breakfast**

**9:00 Welcome and Overview of CMS and CRBM Activities**

**9:15-9:35 Dany Kim-Shapiro**, Physics, “Red Blood Cell Mediated Nitrite Signaling in Diabetes”

**9:35-10:15 Keynote Speaker: Bruce A. Freeman**, Irwin Fridovich Professor and Chair of the Department of Pharmacology and Chemical Biology at University of Pittsburgh. “Pulling New Drug Candidates from the Fires of Inflammation.”

**10:15-10:40 COFFEE BREAK**

**10:40-10:55 Alexandria Harkey**, Muday Group, Biology “Time Course Transcriptomics to Identify Transcription Factor Networks That Control Development”

**10:55-11:10 Bree LaPointe**, Computer Science “Genetic Algorithms Exploring Gene Interactions”

**11:10- 11:30 Tom Hollis**, Biochemistry “A Redox Mechanism for Regulation of dNTP Metabolism by SAMHD1”

**11:30-11:45 Reetta Holmila**, Furdai Group, Internal Medicine-Molecular Medicine, “Mitochondria-targeted Probes for Protein Sulfenylation”

**11:50-12:35 LUNCH: FIRST FLOOR LOBBY**

**12:45-1:15 Sarah McDonald**, Virginia Tech Carilion Research Institute and soon to be WFU Biology “Rotavirus RNA Polymerase Regulation”

**1:15-1:30 Fadi Marayati**, Zhang Group, Biology “The Role of the Exon Junction Complex in Fission Yeast Meiosis”

**1:30-1:50 Peter Antinozzi**, Biochemistry, “From Basic Research to Clinical Trials: Accelerating the Therapeutic Development Pipeline with Customized Computational Tools

**1:50-2:10 Rong Chen**, Physiology and Pharmacology, “Modulation of G-protein Compartmentalization and Signaling by Brain Cholesterol in Animal Models of Addiction”

**2:10-2:30 COFFEE BREAK**

**2:30-2:50 Pierre Vidi**, Cancer Biology, “Elevated Leptin Disrupts Epithelial Polarity and Primes Cancer Initiation in the Mammary Gland”

**2:50-3:10 Ravi Singh**, Cancer Biology, “High ZEB1 Expression Identifies A Subset of Mesenchymal Breast and Other Cancers That Are Sensitive to Low Doses of Silver Nanoparticles”

**3:10-3:30 Vidula Vacharajani**, Molecular Medicine, “Redox Signaling of Specific Cysteine Thiols on NAD<sup>+</sup>- dependent SIRT2 Controls An On/Off Switch for Regulating Inflammation”

**3:30-5:00 POSTER SESSION AND WINE AND CHEESE RECEPTION**

**Optional Breakout session: 3:50-4:10 CRBM Planning for Redox NIGMS T32 application**

## POSTER SESSION

- 1. Ines Batinic-Haberle, Radiation Oncology, Duke University Medical Center, E-mail:** [ibatinic@duke.edu](mailto:ibatinic@duke.edu)

Redox-active Mn porphyrins, MnTE-2-PyP5+ and MnTnBuOE-2-PyP5+, but not redox-inert MnTBAP3-, suppress tumor growth in an environment where H<sub>2</sub>O<sub>2</sub> is produced.

- 2. Brady Buchanan, Biology, Wake Forest University, E-mail:** [buchbb13@wfu.edu](mailto:buchbb13@wfu.edu)

Uncovering protein networks in microbial systems: A possible functional link between protein translation and the biosynthesis of Fe-S cluster in *Azotobacter vinelandii*

- 3. Jordan Chapman, Biology, WFU, E-mail:** [chapjm11@wfu.edu](mailto:chapjm11@wfu.edu)

A genetic approach to understanding the role of flavonols in tomato root development.

- 4. David Clarke, Biology, NC A&T, E-mail:** [dmccclarke4@gmail.com](mailto:dmccclarke4@gmail.com)

The impact of oxidation and glutathionylation on Protein Kinase C alpha global substrate selection

- 5. Xiaofei Chen, Internal Medicine - Molecular Medicine, WFSM, E-mail:** [xichen@wakehealth.edu](mailto:xichen@wakehealth.edu)

Discovery of a new class of biologically compatible thiol-selective reagents

- 6. Cristina Furdui, Internal Medicine - Molecular Medicine, WFSM, E-mail:** [cfurdui@wakehealth.edu](mailto:cfurdui@wakehealth.edu)

Integration of redox regulated signaling and metabolism in Head and Neck Cancer

- 7. Sheena Gayomba, Biology, WFU, E-mail:** [gayombsr@wfu.edu](mailto:gayombsr@wfu.edu)

Flavonol Regulation of Root Architecture Under Iron Deficiency

- 8. Tyler Hinshaw, Physiology and Pharmacology, WFSM, E-mail:** [THinshaw@wakehealth.edu](mailto:THinshaw@wakehealth.edu)

Amphetamine self-administration alters the cholesterol content and GÎ± protein membrane compartmentalization in rat brain

- 9. Monica Jenks, Cancer Biology, WFSM, E-mail:** [mzapata@wakehealth.edu](mailto:mzapata@wakehealth.edu)

Loss of tissue polarity and ROS accumulation is a 3D culture model of obesity-induced cancer initiation

- 10. Bincy Anu John, Cancer Biology, WFSM, E-mail:** [bjohn@wakehealth.edu](mailto:bjohn@wakehealth.edu)

Global profiling of SPARC-regulated metabolic pathways in ovarian cancer

- 11. Reed Lawson, Biochemistry, WFSM, E-mail:** [jeflawso@wakehealth.edu](mailto:jeflawso@wakehealth.edu)

A Structural and Biochemical Analysis of Human Peroxiredoxin-3: A Unique Member of the Prx Family

- 12. Deborah Luessen, Physiology and Pharmacology, WFSM, E-mail:** [djluesse@wakehealth.edu](mailto:djluesse@wakehealth.edu)

RGS2 modulates the selection of GÎ±i/o subtype involved in dopamine D2 receptor signaling

- 13. Gloria Muday, Biology, WFU, E-mail:** [muday@wfu.edu](mailto:muday@wfu.edu)

Uncovering auxin transcriptional networks controlling Arabidopsis lateral root development

**14. Joelle Muhlemann, Biology, WFU, E-mail: [muhlemjk@wfu.edu](mailto:muhlemjk@wfu.edu)**

Flavonols enhance the development and heat stress response of pollen through antioxidant activity

**15. Lindsay Macnamara, Chemistry, WFU, E-mail: [lmacnama@wakehealth.edu](mailto:lmacnama@wakehealth.edu)**

Experimental and computational dynamics of an Aminoacyl-tRNA Synthetase system

**16. Marc Muraski, Chemistry, WFU, E-mail: [muraskmj@wfu.edu](mailto:muraskmj@wfu.edu)**

Study of the Mycoplasma penetrans Aminotransferase Domain

**17. Emil Nilsson, Chemistry, WFU, E-mail: [nilsem15@wfu.edu](mailto:nilsem15@wfu.edu)**

TilS mutations improve bacterial fitness during metabolomic stress in *Burkholderia cenocepacia*

**18. Evan Pardue, Biology Department, NC A&T, E-mail: [ejpardue@aggies.ncat.edu](mailto:ejpardue@aggies.ncat.edu)**

Impact of Redox Modification on the Substrate Selectivity of PKC-B

**19. Derek Parsonage, Biochemistry, WFSM, E-mail: [dp@csb.wfu.edu](mailto:dp@csb.wfu.edu)**

Peroxiredoxin Catalysis at Atomic Resolution

**20. John Petersen, Biology, WFU, E-mail: [petejo13@wfu.edu](mailto:petejo13@wfu.edu)**

Evidence for specialized calcium trafficking in a muscle that controls rapid woodpecker displays

**21. Melissa Srougi, Department of Chemistry, High Point University, E-mail: [msrougi@highpoint.edu](mailto:msrougi@highpoint.edu)**

Exploiting NQO1 bioactivatable quinones for targeted breast cancer therapy

**22. Artak Tovmasyan, Department of Radiation Oncology, Duke University Medical Center, E-mail: [artak.tovmasyan@duke.edu](mailto:artak.tovmasyan@duke.edu)**

Comprehensive study of GPx activity of different classes of redox-active therapeutics - implications for their therapeutic actions

**23. James Tucker, Biology, WFU, E-mail: [jtucker@wakehealth.edu](mailto:jtucker@wakehealth.edu)**

A novel role for 5' to 3' exoribonuclease Dhp1/Rat1/Xrn2: epigenetic silencing

**24. Justin Watkins, WFU, E-mail: [watkjm11@wfu.edu](mailto:watkjm11@wfu.edu)**

The regulation of reactive oxygen species by flavonols in tomato guard cells

**25. Robert Wieland, Internal Medicine - Molecular Medicine, WFSM, E-mail: [rwieland92@gmail.com](mailto:rwieland92@gmail.com)**

Redox Regulation of Akt2 in Breast Cancer and Diabetes

**26. Jiajie Xiao, Physics, WFU, E-mail: [xiaoj12@wfu.edu](mailto:xiaoj12@wfu.edu)**

Probing the mechanism of the switch of the fast and slow forms of thrombin via molecular dynamics simulations

**27. Reed Lawson, Biochemistry, WFSM, E-mail: [jefflawso@wakehealth.edu](mailto:jefflawso@wakehealth.edu)**

A Structural and Biochemical Analysis of Human Peroxiredoxin-3: A Unique Member of the Prx Family.