

**10<sup>th</sup> International Copper Research Meeting**  
***Copper 2016 Sorrento***

**Monday, September 26, 2016**

8:15am        **Welcome and Introductory Remarks**  
Kaler/Leary/Polishchuk

**I. Plenary Session**

Co-Chairs: James Camakaris, Stephen G. Kaler

- 8:30-9:00     **S1. ATP-driven copper transport and cellular redox balance.**  
Svetlana Lutsenko\*, Yuta Hatori, Ashima Bhattacharjee, Eri Furukava,  
Ye Yan, Shanthini Sockanathan
- 9:00-9:30     **S2. Copper transport in methanotrophic bacteria**  
Laura M. K. Dassama, Grace E. Kenney, Soo Y. Ro, Monica Sadek, Eliza  
L. Zielazinski, and Amy C. Rosenzweig\*
- 9:30-10:00    **S3. Rescuing mitochondria in Wilson disease avoids acute liver failure**  
Hans Zischka
- 10:00-10:45   *Coffee Break*
- 10:45-11:15   **S4. Infectious niche-specific changes in copper homeostasis between  
the host and the fungal pathogen *Cryptococcus neoformans***  
Dennis J. Thiele
- 11:15-11:45   **S5. Autophagy operates as pro-survival mechanism in Wilson disease  
cell model**  
Elena V. Polishschuk\*, Assunta Merolla, Mafalda Concilli, Simona  
Iacobacci, Roman S. Polishchuk

**Lunch**

**II. Neuroscience**

Co-Chairs: Betty Eipper, Rosanna Squitti

Sponsored by the *International Society for Neurochemistry*

- 1:30-1:55pm   **S6. Targeting mis-regulation of copper in neurodegeneration**  
Anthony White
- 1:55- 2:20     **S7. Copper imbalance in Alzheimer's disease**  
Rosanna Squitti\*, Courtney McCann and Svetlana Lutsenko

- 2:20- 2:45 **S8. High-affinity, redox-silent copper binding of beta-amyloid – a thorn in the side for the metals hypothesis of Alzheimer's disease**  
Mariusz Mital, Tomasz Frączyk, Ewelina Stefaniak, Cathryn Haigh, Wojciech Bal, Simon Drew\*
- 2:45-3:30 *Coffee Break*
- 3:30-3:55 **S9. Peptidylglycine alpha-Amidating Monooxygenase (PAM): an essential cuproenzyme with roles in neuropeptide biosynthesis, ciliogenesis and oxygen sensing**  
Betty Eipper\*, Dhivya Kumar, Daniela Strenkert, Vishwanatha KS, Ramila Patel-King, Sabeeha Merchant, Richard Mains, Stephen M. King
- 3:55-4:20 **S10. Specific interaction of copper with neurotransmitter receptor channels**  
Carla Marchetti
- 4:20-4:45 **S11. Towards a molecular description of the copper trafficking processes in cells**  
Lucia Banci

## **Poster Session I**

5:00-7:00pm **Presentations by Authors of Even-numbered Posters**

## **Tuesday, September 27, 2016**

### **III. Microbial**

Co-Chairs: David Giedroc, Mak Saito

- 8:30-9:00am **S12. Novel mechanisms of copper-responsive regulators and efflux pumps in living cells revealed by single-molecule imaging**  
Peng Chen
- 9:00-9:20 **S13. Should I stay or should I go? How a dimorphic bacterium copes with Cu toxicity**  
Emeline Lawarée, Sébastien Gillet, Gwennaëlle Louis, Françoise Tilquin, Sophie Le Blastier, Pierre Cambier and Jean-Yves Matroule\*
- 9:20-9:40 **S14. Plasma Cu/Zn ratios correlate with the development of infectious diseases in both healthy and acutely ill patients.**  
Peggy L. Carver\*, Imad F. Btaiche
- 9:40-10:25 *Coffee Break*
- 10:25-10:55 **S15. Copper as a nutrient for fungal infections**  
Valeria C. Culotta
- 10:55-11:25 **S16. New insights into the mechanisms of Cu toxicity and tolerance in *Escherichia coli***  
Karrera Y. Djoko\*, Mark J. Walker, Mark A. Schembri, and Alistair G. McEwan
- 11:25-11:45 **S17. Copper-biased anti-Staphylococcal screening campaign reveals inhibitors with previously unrecognized chemical motif**  
Alex Dalecki\* and Frank Wolschendorf

### **Lunch**

### **IV. Mitochondrial**

Co-Chairs: Scot Leary, Alejandro Vila

- 1:30-2:00pm **S18. Getting Out What You Put In: Assembly of Cytochrome c Oxidase**  
Micah G. Gammon, Margaret K. Maynard, Amy Smart, Katherine E. Vest, Abby Threet, Scot C. Leary and Paul A. Cobine\*
- 2:00-2:30 **S19. Molecular Mechanisms of Ccs1-mediated Sod1 Maturation**  
SB Sneed, M Fetherolf, Ninian Blackburn, PJ Hart, Dennis Winge, and Duane D. Winkler\*

\*Presenting author

- 2:30-3:15 **Coffee Break**
- 3:15-3:45 **S20. Discovery and characterization of novel mitochondrial proteins involved in copper delivery to cytochrome c oxidase**  
A. Ghosh, S. Soma S, M.T. Naik, V.M. Gohil\*
- 3:45-4:15 **S21. Functional studies of plant mitochondrial copper chaperones. Roles beyond cytochrome c oxidase biogenesis.**  
Daniel Gonzalez\*, L. Garcia, E. Welchen, C.V. Attallah and N. Mansilla
- 4:15-4:45 **S22. Functional genetic investigation of a novel inter-organ signaling pathway critical to integrity of the immune system**  
Kim Jett\*, Zak Baker, Paul Cobine, A Hossain, L Wan, Scot C. Leary

## V. Plant

Co-Chairs: Ute Kraemer, Sabeeha Merchant

- 5:00-5:30pm **S23. Bacterial Cu importer CcoA and Cu insertion to cytochrome c oxidase**  
Bahia Khalfaoui-Hassani, Andreia F. Verissimo, Hans-Georg Koch and Fevzi Daldal\*
- 5:30-6:00 **S24. Regulatory synergy between Cu and other transition metal ions**  
Blaby-Haas CE\*, Stavitski A, Merchant SS
- 6:00-6:30 **S25. The POLARIS peptide regulates availability of copper (I) to the ethylene receptor of *Arabidopsis***  
Keith Lindsey
- 6:30-7:00 **S26. Subcellular metal imaging identifies dynamic sites of Cu accumulation in *Chlamydomonas***  
Jennifer Pett-Ridge\*, Anne Hong-Hermesdorf, Marcus Miethke, Peter K Weber, Sabeeha S. Merchant

## **Wednesday, September 28, 2016**

### **VI. Cell Biology**

Co-Chairs: Mick Petris, Bart Van de Sluis

- 8:30-9:00      **S27. Transition Metal Signaling in the Brain and Beyond**  
Christopher J. Chang
- 9:00-9:30      **S28. COMMD family of proteins forms a multiprotein complex to preserve copper homeostasis**  
Alina Fedoseienko, Melinde Wijers, Daniel D. Billadeau, Karin Wolters, Nicolette Huijkman, Daphne Dekker, Niels Kloosterhuis, Jan Albert Kuivenhoven, Ezra Burstein, Marten Hofker, Bart van de Sluis\*
- 9:30-10:00     **S29. COMMD1 and the regulation of endosomal protein trafficking: copper transporters and other targets**  
Ezra Burstein
- 10:00-10:45    *Coffee Break*
- 10:45-11:05    **S30. Microscopy-based high content screening reveals new correctors of the most frequent ATP7B mutant.**  
Simona Iacobacci\*, Elena Polishchuk, Mafalda Concilli, Sandro Montefusco, Luca Giorgio Wanderlingh, Diego Medina, Francesco Sirci, Diego di Bernardo, Roman Polishchuk
- 11:05-11:25    **S31. Norepinephrine modulates DBH secretion by regulating copper transporter ATP7B in adrenergic neuronal cells**  
Schmidt K\*, Schaffer T, Jayakanthan S, Lutsenko S
- 11:25-11:45    **S32. A new family of Cu-only superoxide dismutase enzymes**  
Sabrina Schatzman\*, Ryan Peterson, and Valeria Culotta

### **Lunch**

### **VII. Cancer**

Co-Chairs: Donita Brady, Stephen Howell

- 1:30-2:00pm    **S33. HIF-1 alpha and GPER cooperate toward VEGF-dependent tumor angiogenesis induced by copper**  
EM De Francesco\*, DC Rigracciolo, M Maggiolini, R Lappano
- 2:00-2:30      **S34. Roles of ATP7A-dependent copper transport in tumor growth**  
Vinit Shanbhag, Sha Zhu, Yanfang Wang, Jaekwon Lee, Michael J. Petris\*

\*Presenting author

- 2:30-2:50 **S35. The role of copper in mast cell function**  
Helena Öhrvik\*, Brandon Logeman, Glyn Noguchi, Lena Kjellén,  
Dennis J. Thiele, Gunnar Pejler
- 2:50-3:15 *Coffee Break*
- 3:15-3:45 **S36. Tracing Cancer Utilization of Copper-Mediated MAPK Signal Transduction and Beyond**  
Donita Brady
- 3:45-4:15 **S37. Inhibition of human copper trafficking by small molecule significantly attenuates cancer cell proliferation**  
Jing Chen
- 4:15-4:45 **S38. Copper depletion as a strategy in breast cancer: Phase II study of tetrathiomolybdate in patients at high risk for recurrence**  
Linda Vahdat

## **Poster Session II**

5:00-7:00pm **Presentations by Authors of Odd-numbered Posters**

## **Thursday, September 29, 2016**

### **VIII. Human Disease**

Co-Chairs: Svetlana Lutsenko, Michael Schilsky

- 8:30-9:00am **S39. Studies on mechanisms and remedies for ATP7A-related copper transport disorders**  
Ling Yi, Marie Reine Haddad, Kristen Stevens, Diego Martinelli, Tanya Sokolsky, Arindam Bhattacharjee, Stephen G. Kaler\*
- 9:00-9:20 **S40. Preclinical dose-ranging study of CSF-directed AAV9-ATP7A plus subcutaneous copper histidinate suggests an optimized approach to viral gene therapy for Menkes disease.** MR Haddad\*, E-Y Choi, PM Zerfas, PH Sullivan, DS Goldstein, M Ralle, D Vine, LR Brinster, JA Centeno, SG Kaler
- 9:20-9:40 **S41. Pathological and adaptive changes in the kidney of the mosaic mutants as an effect of copper supplementation therapy.**  
Olga Pierzchana, Aneta Jonczya, Rafal R. Starzynski, Robert Staron, Mateusz Ogorek, Wojciech Krzeptowski, Pawel Grzmiel, Aleksandra Bednarz, Pawel Lipinski, Malgorzata Lenartowicz\*
- 9:40-10:25 *Coffee Break*
- 10:25-10:55 **S42. Update on Clinical Trials for Wilson Disease**  
Michael L. Schilsky
- 10:55-11:25 **S43. Novel Role of Redox Sensitive Cu transport protein Atox1 in Inflammation and Atherosclerosis**  
Tohru Fukai
- 11:25-11:45 **S44. Isotopic mapping by LA-ICP-MS reveals dyshomeostasis of copper and zinc in the human ALS spinal cord**  
Kai Kysenius\*, James Hilton, Catriona McLean, Blaine Roberts, Dominic Hare, Peter J Crouch

### **Lunch**

### **IX. Protein Structure**

Co-Chairs: Pontus Gourdon, Simone Ciofi-Baffoni

- 1:30-2:00pm **S45. Multiheme sulfite reductases – A new class of copper proteins?**  
Bianca Hermann\*, Melanie Kern, Jörg Simon, Oliver Einsle

- 2:00-2:30 **S46. A cytosolic enzyme is inhibited by toxic copper in *Staphylococcus aureus***  
Gustavo Pelicioli-Riboldi, Emma Tarrant, Jack Stevenson, Arnaud Baslé, Samantha Firth, Matt McIlvin, Anna Barwinska-Sendra, Joanne Purves, Mak Saito, Julie Morrissey and Kevin Waldron\*
- 2:30-2:50 **S47. Structural Studies of Human ATP7B using Electron Microscopy**  
Samuel Jayakanthan\*, Lelita Braiterman, Nesrin Hassan, Vinzenz M. Unger, and Svetlana Lutsenko
- 2:50-3:35 **Coffee Break**
- 3:35-3:55 **S48. Transient domain interactions suggest a structure-based mechanism of ATP7B regulation by copper.**  
Corey Yu, Sergiy Nokhrin, Jameson Bothe, Woongee Lee, Marco Tonelli, Lelita Braiterman, Ann Hubbard, Svetlana Lutsenko and Oleg Dmitriev\*
- 3:55-4:15 **S49. Crystal Structures of the Substrate Complex of Tyrosinase**  
Nobutaka Fujieda\*, Kyouhei Umakoshi, and Shinobu Itoh
- 4:15-4:45 **S50. Tracking Metal Efflux through the Cus Exporter: Functional Attributes and Shared-Ligand Intermediates Revealed By Multi-Edge X-ray Spectroscopy, Rapid-Freeze EXAFS and Stopped Flow Fluorescence Spectrometry**  
Kelly N. Chacon, Megan McEvoy, and Ninian J. Blackburn\*

## **X. Poster Talks Session**

Co-Chairs: Valeria Culotta, Dennis Winge

- 5:00-5:20pm **S51. ProteOMZ: Development of Biogeochemically Relevant Peptide Biomarkers for High-Throughput Marine Microbial Ecosystem Characterization in Oceanic Oxygen Minimum Zones**  
Mak Saito\*, Matt McIlvin, Dawn Moran, Alyson Santoro, Chris Dupont, Michael Rappe
- 5:20-5:40 **S52. Copper deficiency induces adipocytes hypertrophy by inhibiting ATP7A-dependent SSAO activity**  
Haojun Yang\*, Martina Ralle, Risa M. Wolf, Michael Wolfgang, Jason L. Burkhead, Susana Rodriguez, Chin-Nung Liu, Kristin Ivy, Jack H. Kaplan, Kimberley E. Steele, Leigh A. Peterson, Thomas H. Magnuson, Michael A. Schweitzer, Guang W. Wong, Svetlana Lutsenko
- 5:40-6:00 **S53. Beta-secretase (BACE1) forms trimers and regulates cytosolic copper export**  
Filip Liebsch\*, Gerhard Multhaup



- 6:00-6:20 **S54. Storage Vesicles in Mammalian Copper Homeostasis**  
Martina Ralle\*, Tony Capps, Megan Duffy, David Vine, Stefan Vogt
- 6:20-6:40 **S55. Deletion of Sco1 in the murine heart causes a severe, dilated cardiomyopathy that is associated with both a cytochrome c oxidase and a global copper deficiency.**  
Zak N. Baker\*, K. Jet, A. Hossain, PA Cobine, T Wai, L Lee, GF Tibbits, S.C. Leary
- 6:40-7:00 **S56. Hole Hopping Chains in Copper Proteins**  
Jay R. Winkler\*, Harry B. Gray