

First Annual UC Davis

# POSTDOCTORAL RESEARCH SYMPOSIUM

May 14<sup>th</sup> 2015  
Memorial Union

 #UCDPRS



The organizing committee of the Postdoctoral Research Symposium would like to thank all of our Sponsors for making this event possible.



THANK YOU to our **abstract readers, session chairs, judges & Grad Studies staff** for their time and incredible support. We are also grateful to **Lagunitas** for their donation.

**Organizing committee:**

Kaisa Kajala (chair)  
Anna Kalashnikova  
Sam Lewis  
Mily Ron

Dominique Duncan  
Lilia Kurmanaeva  
Nicky Creux  
Ygal Achmon

8:30 - 9:00 am    **Registration and Poster set up.** MUII lobby.

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9:00 - 10:30 am    **Parallel Session 1**

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**Session A, Fielder Room. *Development & Stem Cells.***

Chair: Ruta Sahasrabudhe

- 9:00    **Guilai Shi**, Biochemistry and Molecular Medicine: *Abnormal activity of neurons and astroglia differentiated from Down syndrome induced pluripotent stem cells*
- 9:15    **Jessica Gluck**, Internal Medicine: *Effects of extracellular matrix on human induced pluripotent stem cell-derived cardiomyocytes*
- 9:30    **Ross Johnson**, Plant Biology: *How do plants respond to radiation?*
- 9:45    **Michael VanGompel**, Molecular and Cellular Biology: *Investigating the Link Between Nuclear Pores and Asymmetric Cell Division*
- 10:00    **Kyle Fink**, Stem Cell Program: *Allele-specific reduction of the mutant huntingtin gene using transcription activator-like effectors*
- 10:15    **Noa Safra**, Population Health and Reproduction: *Genome-wide association mapping in Dogs identifies the homeobox gene, NKX2.8, in the etiology of neural tube defects in humans*

**Session B, Garrison Room. *Microbes All Around Us.***

Chair: Nicky Creux

- 9:00    **Javad Barouei**, Food Science and Technology: *Resistant Starch and Lactobacillus Feeding Improves Metabolic Functions in Diet-Induced Obese Mice*
- 9:15    **Minji Kim**, Civil and Environmental Engineering: *Survival of fecal Bacteroidales cells and persistence of their DNA in freshwater sediments as quantified by PMA-qPCR*
- 9:30    **Barbara Shock**, Pathology, Microbiology, Immunology: *Development of a patagia explant model for the study and mitigation of white-nose syndrome*
- 9:45    **Elizabeth Antaki**, Western Center for Food Safety: *Molecular comparison of Salmonella strains from irrigation systems in Southern Georgia*
- 10:00    **Rebecca Lobo**, Food Science and Technology: *Developing tools for the management of large volumes of data*
- 10:15    **Eunsook Park**, Plant Biology and Genome Center: *Inter-organellar communication in plant cells: stromule and plant immunity*

**Session C, De Carli Room. *Join the Symposium, See the World!***

Chair: Ygal Achmon

- 9:00    **Giovanni Circella**, Institute of Transportation Studies: *Residential Location, Lifestyles, Car Ownership and Mobility Choices of Millennials in California*
- 9:15    **Jonathan Scholnick**, Linguistics: *Using glyphic variation to infer the social and spatial scale of learning among Classic Maya scribes*
- 9:30    **Quentin Stoeffler**, Agricultural and Resource Economics: *Households' investments in durable and productive assets in Niger: quasi-experimental evidence from a cash transfer project*
- 9:45    **Leandro Thomaz de Almeida**, Spanish and Portuguese: *The Amazonian novel and travel narratives: similarities and differences*
- 10:00    **Sarah Medynski**, Earth and Planetary Sciences: *Building a young spreading centre: a case from Afar (Ethiopia)*
- 10:15    **Resmi Ravindran**, Center for Comparative Medicine: *Clinical Validation of Blood Based Diagnostic Test for Tuberculosis*

10:30 - 11:00 am    **Coffee break.** MUII patio.

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**Session A, Fielder Room. Tools for the Future.**

Chair: Elizabeth Antaki

- 11:00 **Bradley Collier**, Center for Biophotonics: *Non-Linear Optical Flow Cytometry Using a Scanned, Bessel Beam Light-Sheet*
- 11:15 **Zimple Matharu**, Electrical and Computer Engineering: *A room-temperature electrochemical technique to create nanostructure libraries for biosensing*
- 11:30 **Feng Jiang**, Fiber and Polymer Science: *Self-assembly and application of cellulose nanofibrils as superabsorbent materials and chemical sensors*
- 11:45 **Geetu Sharma**, Chemical Engineering and Materials Science: *Synthesis and Limits of p-CuBi<sub>2</sub>O<sub>4</sub> Nanocrystals as Visible Light Photocatalyst for Hydrogen Evolution from Water*
- 12:00 **Farzad Fereidouni**, Pathology: *MUSE: Deep UV excitation microscopy for imaging of exogenous fluorophores in tissue with applications in histology and pathology*
- 12:15 **Kaiqin Chu**, Center for Biophotonics: *Image reconstruction for structured-illumination microscopy with low signal level*

**Session B, Garrison Room. Oh Behave!**

Chair: Jessica Budke

- 11:00 **Orr Spiegel**, Environmental Science and Policy: *What's your move? Personality dependent space-use in the Australian sleepy lizard*
- 11:15 **Kohei Enami**, Public Health Sciences: *Parental Investment in Children Diagnosed with ADHD*
- 11:30 **Jacob Davidson**, Neuroscience: *Neurons, synapses, and ant colonies: collective decision-making using simple messages*
- 11:45 **Grant Humphries**, Neurobiology, Physiology and Behavior: *Predicting foraging events of a charismatic seabird in a seemingly featureless "landscape"*
- 12:00 **Oanh Meyer**, Neurology: *Where you live matters: The influence of neighborhood socioeconomic status on cognitive decline*
- 12:15 **Charlotte Ronveaux**, Anatomy, Physiology and Cell Biology: *The effects of gender on meal patterns through signaling within the gut brain axis*

**Session C, De Carli Room. DNA and Gene Expression.**

Chair: Anna Kalashnikova

- 11:00 **Hagop Atamian**, Plant Biology: *Sunflower Heliotropism: New Insights into a Classic Phenomenon*
- 11:15 **Melis Akman**, Plant Sciences: *Transcriptome sequencing reveals population differentiation in gene expression linked to functional traits and environmental gradients in South African sugarbush (Protea repens)*
- 11:30 **Josephine Trott**, Animal Science: *The prolactin receptor - it's not just about making milk*
- 11:45 **Sara Freeman**, Psychology: *Distribution of Oxytocin Receptor and Vasopressin 1a Receptor in Human Brainstem*
- 12:00 **Gaëlle Robin**, Molecular Biosciences: *Ataxia-telangiectasia mutated (ATM) signaling is up-regulated in an FMR1 premutation mouse model*
- 12:15 **Juan Manuel Artes Vivancos**, Electrical and Computer Engineering: *Electrical conductance of different DNA structures: from single molecule charge transport to electrochemical platforms for sensor application.*



12:30 – 3pm **Poster session. MUII**

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1:00 – 1:55pm Presenters of posters with **odd** numbers to be at their posters

1:55 – 2:50pm Presenters of posters with **even** numbers to be at their posters

Please take all posters down by 3:00pm

3:00 - 4:30pm **Parallel Session 3**

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**Session A, Fielder Room. Cellular and Molecular Life Sciences.**

Chair: Samantha Lewis

3:00 **Natalie Cain**, Molecular and Cellular Biology: *Maintaining the spacing between the inner and outer nuclear membranes*

3:15 **Ashley Rowson-Hodel**, Biochemistry and Molecular Medicine: *Depletion of Chemotherapy Resistant Breast Cancer Cell Populations By Induction of Non-Apoptotic Cell Death*

3:30 **Jonathan Ashby**, Chemistry: *Affinity Purification - Mass Spectrometry of Base Excision Repair Enzymes in cancer cells*

3:45 **Sumit Sandhu**, Microbiology and Molecular Genetics: *Meiosis specific SUMO E3 ligase, RNF212, is a limiting factor from meiotic crossovers*

4:00 **Huanyu (Joe) Qiao**, Microbiology and Molecular Genetics: *Rnf212 is a meiotic checkpoint factor to eliminate defective oocytes.*

4:15 **Rory Pruitt**, Plant Pathology: *The rice immune receptor XA21 is activated by the sulfated bacterial peptide RaxX*

**Session B, Garrison Room. Big Data.**

Chair: Lilia Kurmanaeva

3:00 **Baishakhi Ray**, Computer Science: *Leveraging Big Software Data to Improve Software Quality*

3:15 **Cody Markelz**, Plant Biology: *Systems genetics in Brassica rapa provides rapid candidate gene identification from high-throughput phenotyping data*

3:30 **Nathan Shih**, Biomedical Engineering: *Optimizing RNA Structure Prediction from Arabidopsis Mapping Data*

3:45 **Joshua Patrick**, Statistics: *Time series analysis of solar irradiance data using Gaussian processes*

4:00 **Benjamin Cain**, Physics: *Finding Lumps of Dark Matter with Bent Galaxies*

4:15 **Floriana Petrone**, Civil and Environmental Engineering: *Collapse Simulation of Concrete Buildings*

**Session C, De Carli Room. Changing Environment & Sustainability.**

Chair: Nina Vollmer

3:00 **Lloyd Nackley**, Plant Sciences: *CO2 and drought as of land-cover change in South African savannas*

3:15 **Dominique Young**, Environmental Toxicology: *Organic aerosol chemistry at Fresno in the San Joaquin Valley of California: Insights into emission sources and meteorological influences*

3:30 **Atefeh Taheri**, Chemistry: *Electrocatalyst for Reduction of CO2*

3:45 **Sara Kross**, Wildlife, Fish & Conservation Biology: *Do bird-friendly farms support more farm-friendly birds?*

4:00 **Jesus Fernandez Bayo**, Biological and Agricultural Engineering: *Study of the combined anaerobic and aerobic digestion of organic waste to sustainably produce soil amendments*

4:15 **Ygal Achmon**, Food Science and Technology: *Closing the loop: Utilization of food processing organic waste for sustainable agriculture*

4:30 – 6:30pm **Awards Ceremony & social hour with drinks and appetizers.** MUII and MUII patio.

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## POSTER PRESENTATIONS

Poster session at 12:30 – 3:00 pm in MUII

Odd posters presented 1:00 – 1:55pm

Even posters presented 1:55 – 2:50pm

1. **Mary Baldwin**, Center for Neuroscience: *Revealing functional organization of frontoparietal networks in tree shrews (Tupaia belangeri) using reversible inactivation*
2. **Songpoom Benyakorn**, Psychiatry: *Computer-based Working Memory Training Program for Children with Autism Spectrum Disorder*
3. **Teresa Carrillo Cobo**, Land, Air and Water Resource: *Agricultural Water Management Improvement at Russell Ranch*
4. **Patricia Castillo**, Medical Microbiology and Immunology: *Defensin Nets and Harpoons Mediate Homeostasis in the Small Intestine*
5. **Rodrigo Cerqueira**, Spanish and Portuguese: *The Marriage Plot in Brazilian Nineteenth Century Fiction*
6. **Ching-Hsien Chen**, Department of Internal Medicine: *Targeting MARCKS Phosphorylation Site Domain in Lung Cancer: Mechanisms and Therapeutic Implications*
7. **Xiaopeng Chen**, Molecular Biosciences: *Determination of Polybrominated Diphenyl Ethers and Polychlorinated Biphenyls in Bovine Milk*
8. **Dylan Cooke** Psychology and Center for Neuroscience: *Reversible deactivation of motor cortex reveals functional connectivity with posterior parietal cortex in the prosimian galago (Otolemur garnetti)*
9. **Eleonora Cremonini**, Nutrition: *Effects of (-)-epicatechin on hepatic redox-signaling and insulin sensitivity in vitro and in vivo obesity models*
10. **Nicky Creux**, Plant Biology: *East or west, which way is best? - The effects of sunflower head orientation on floral development and pollinator visits*
11. **Kate Crosby**, Plant Sciences: *Pedigree-based approaches to identifying selection in US maize*
12. **Gordon Davidson**, Food Science and Technology: *Impact of Handling Practices on the Microbiota of Inshell California Walnuts*
13. **Miguel De Lucas**, Plant Biology and Genome Center: *Cell Type-Specific Gene Regulatory Network of the Polycomb Repressive Complex 2 in Arabidopsis*
14. **Ali Dehnad**, Center for Comparative Medicine: *In Vitro Analysis of Interactions Between Mycobacterium Tuberculosis and Immune Cells*
- 15.
16. **Dawei Feng**, NEAT ORU: *Thermodynamic properties of fischesserite*
17. **Jochen Fiebig**, Chemical Engineering and Materials Science: *Influence of length scale on mechanical properties of multilayered nanocrystalline Ni-Fe at elevated temperature*
18. **Molly Foote**, Neurological Surgery: *Characterization of Synaptic Proteins and Morphology in a Doxycycline-inducible Mouse Model of Fragile X Premutation*
19. **Rajeshwary Ghosh**, Neurobiology, Physiology and Behavior: *Inhibitory Effect of Meclofenamate Sodium on Proteasome Activity in the Cardiac Cells and Reversal of its Effect by Antioxidants*
20. **Sidhartha Hazari**, Biochemistry and Molecular Medicine: *Are all exosomes created equally? Investigations into structure and function of extracellular vesicle subpopulations*
21. **Sixiao Hu**, Textiles and Clothing: *Lignin based activated carbon fibers as supercapacitors and solid acid catalysts*
22. **Christian Ibarra**, Plant Sciences: *Functional Analysis of a Barley LEC1-type Gene*
23. **Nazar Ileri**, Chemical Engineering and Materials Science: *Molecular Simulations of the Transport through DOPC Lipid Bilayer in the presence of Pluronics*
24. **Imju Jeong**, Internal Medicine: *Effects of small conductance  $Ca^{2+}$ -activated  $K^{+}$  channels on cardiogenesis in human induced pluripotent stem cells*
25. **Anna Kalashnikova**, Microbiology and Molecular Genetics: *Study of chromatin remodeling by single molecule microscopy*

- 26.
27. **Bipin Kumar**, Textiles and Clothing: *Smart Compression Management Using Shape Memory Stocking*
28. **Arti Kundu**, One Health Institute: *Role of hands in diarrheal pathogen transmission in a threshold country*
29. **Baohua Li**, Plant Sciences: *Transcriptional Regulation on Glucosinolates Biosynthesis in Arabidopsis*
30. **Siming Liu**, Plant Sciences: *Construction and characterization of dexamethasone and estrogen inducible RNAi vectors for controlled gene silencing in plant roots*
31. **Bradley Main**, Pathology, Microbiology, Immunology: *Complex and evolving insecticide resistance spans species barriers in A. coluzzii*
32. **Hasti Majidi**, Chemical Engineering and Materials science: *Consolidation of partially stabilized ZrO<sub>2</sub> in the presence of a non-contacting electric field*
33. **Mahta Moussavi**, Food Science and Technology: *Reduction of Escherichia coli O157:H7 and Listeria monocytogenes on Inoculated Almonds Exposed to Different Heat Treatments*
34. **Jessica Munson**, Linguistics: *Divergent Dynastic Traditions: Investigating Patterns of Ritual Variation in Classic Maya Writing*
35. **Nora Navarro-Gonzalez**, Western Center for Food Safety: *Falconry in fresh produce fields as a potential deterrent of nuisance birds to avoid fecal contamination*
36. **Thuy Nguyen**, Computer Science: *Structured Light based 3D Reconstruction System for Plants*
37. **Alejandro Ortega-Beltran**, Plant Pathology: *Selection of native, well adapted, efficient atoxigenic Aspergillus flavus isolates to limit aflatoxin contamination of almonds, figs and pistachios grown in California*
38. **Janani Prabhakar**, Center for Mind and Brain: *The Developmental Path to Remembering the Future*
39. **Lili Qin**, Radiation Oncology: *Mitochondrial CDK1 mediated cellular homeostasis in normal cell radiation response*
- 40.
41. **Maria Reguera**, Plant Sciences: *pH regulation by NHX-type endosomal antiporters is required for receptor-mediated protein trafficking to the vacuole*
42. **Mily Ron**, Plant Biology: *A rapid method for translating molecular tools for crop species*
43. **Martin Schlipf**, Computer Science: *Predicting material properties with computational methods*
44. **Ivana Sedej**, College of Agricultural and Environmental Sciences, Olive Center: *Sustainable Technologies for Olive Mill Wastewater Management*
45. **Radha Shivaramaiah**, NEAT ORU: *Energetics of Order-Disorder in Layered Magnesium Aluminium Double Hydroxides with Interlayer Carbonate*
46. **Anna Steel**, Environmental Science and Policy: *Comparing Models of Animal Movement*
47. **Nina Vollmer**, Biomedical Engineering: *Mesenchymal Stem Cell Delivery Using Photopolymerized Alginate Hydrogels for Bone Formation*
48. **Kwanjeera Wanichthanarak**, West Coast Metabolomics Center: *Grinn: A graph database and R package for omics integration*
49. **Jongchan Woo**, Genome Center: *Systematic investigation of AtAtg4-mediated processing of AtAtg8 autophagy proteins using Bioluminescence Resonance Energy Transfer (BRET)-based synthetic substrates*
50. **Mariana Xavier**, Medical, Microbiology and Immunology: *The ER stress-induced pro-inflammatory response is mediated by the NOD1/NOD2 signaling pathway*
51. **Jinliang Yang**, Plant Sciences: *Utilizing Evolutionary Conservation Information to Improve Prediction Accuracy in Genomic Selection*
52. **Adam Lampert**, Environmental Science and Policy: *Ecosystem restoration by multiple agents*

	MUII	Fielder Room	Garrison Room	De Carli Room
8:30 am – 9:00 am	Registration (lobby) & poster set up			
9:00 am – 10:30 am		Session 1A: <i>Development &amp; Stem Cells</i>	Session 1B: <i>Microbes All Around Us</i>	Session 1C: <i>Join the Symposium, See the World!</i>
10:30 am – 11:00 am	Coffee (patio)			
11:00 am – 12:30 pm		Session 2A: <i>Tools for the Future</i>	Session 2B: <i>Oh Behave!</i>	Session 2C: <i>DNA &amp; Gene Expression</i>
12:30 pm –	Lunch (patio)			
1:00 pm – 1:55 pm	Odd <b>posters</b> presented			
1:55 pm – 2:50 pm	Even <b>posters</b> presented			
3:00 pm – 4:30 pm		Session 3A: <i>Cellular &amp; Molecular Life Sciences</i>	Session 3B: <i>Big Data</i>	Session 3C: <i>Changing Environment &amp; Sustainability</i>
4:30 pm –	Light refreshments (patio)			
5:00 pm – 5:30 pm	Awards Ceremony & Final words			
5:30 pm - 6:30 pm	Social hour			