

UNC-CH Biochemistry and Biophysics Departmental Research Retreat Poster Schedule October 2023

Morning session – 9:30am – 10:45 am

| <u>Poster number</u> | <u>Presenter</u> | <u>Title</u> |
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| 1 | Dillon Sloan | CCDC32 separates the AP-2 heterotetramer into component hemi-complexes |
| 2 | Jocelyn Alvarado | Elucidation of the Molecular Basis and Cellular Functions of Vinculin-Actin Directional Catch Bonding |
| 3 | Guo Quing (Tiger) Tang | A Novel in vivo Approach (Reverse Molecular Evolution) to Primordial Gene Discovery for Understanding Life's Origin |
| 4 | Emily Clark | Staphylococcus aureus-Mediated Fibrin Polymerization as a Mechanism of Bacterial Virulence |
| 5 | Chrisopher Shelby | Enhancing tyrosinase's kinetics and selectivity through substrate recruitment |
| 6 | Darex Vera-Rodriguez | The Role of Structural and Dynamic Rearrangements in a Classically Allosteric Protein |
| 7 | Maria Al Haddad | Allosteric Activation of PI3K α by RAS |
| 8 | Quentin Hahn | 2'3'-cGAMP interactome identifies CN37/2'3'-cGAMP/Rab18 signaling in cell migration control independent of innate immunity |
| 9 | Tomiris Mulikova | Designing de novo allostery using computational protein design pipeline EvoPro |
| 10 | Alejandro Lopez | Neuroimmune actions of (3 α ,5 α)3-hydroxypregnan-20-one in alcohol preferring (P) rat brain |
| 11 | Riya Gohil | Role of HMGN proteins in structuring the genome |
| 12 | Shu Zhang | The curious case of redundant MAPKs and how they help cell adapt to the changing environment |

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| 13 | Victoria Augoustides | Looks can be deceiving – A Quantitative Evaluation of Denoising Models in AI-guided 3D Lattice Light Sheet Microscopy |
| 14 | David Rocco | Platelet Rap1 Modulation by von Willebrand Factor Receptor GPIb-IX |
| 15 | Matt Begley | Structure of Human AP-3 via unconventional Cryo-EM |
| 16 | Jake Foreman | Delineating the Variant-Specific Interaction of Reader Protein PHF6 with the Human Histone H3.3 Tail |
| 17 | Dalia Fleifel | Racing against time: c-Myc overproduction accelerates DNA replication origin licensing in a short G1 phase. |
| 18 | Sierra Cole | Multivalency of RNA impacts the assembly of biomolecular condensates |
| 19 | Rob Whitaker | Genome Stability Maintenance during Cellular Quiescence through CDT1 Regulation |
| 20 | Venkata Chirasani | Exploring Biomolecular Complexity: Insights into Human Diseases and Molecular Mechanisms |

Afternoon session – 3:00pm – 4:30pm

| <u>Poster number</u> | <u>Presenter</u> | <u>Title</u> |
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| 21 | Adam Luthman | Distinct mechanisms for repair of each strand of a double strand break by NHEJ |
| 22 | Sarah Harris | Evolution of RNA Binding and Regulation |
| 23 | Charlie Carter and Tiger Tang | Acylation of tRNA ^{Leu} Minihelix by Leucyl-tRNA Synthetase Urzyme Provides an Experimental the RNA Charging Model for Single Domain Ancestry of Translation |
| 24 | Edgar Faison | Visualizing Cotranscriptional RNA Folding at Single Nucleotide Resolution |
| 25 | Uriel Jean-Baptiste | Characterizing the Enzymatic Activity of Endothelial Lipase |
| 26 | Hajar Zaheer | A discrete diffusion model for protein side-chain packing |

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| 27 | Sourav Kumar Patra | Genomic databases furnish a spontaneous example of a functional Class II Glycyl-tRNA synthetase “urzyme” |
| 28 | Xavier Bonner | Stoichiometry For Entry and Binding Properties of the Env Protein of R5 T Cell-Tropic HIV-1 and the Evolutionary Variant of Macrophage-Tropic HIV-1 |
| 29 | Amrita Nallathambi | Deep learning-based in silico evolution for highly accurate, accessible protein design |
| 30 | Mark Kowalewski | Mucin-Degrading Glycoside Hydrolase Landscape in Gut Microbiomes in Health and IBD |
| 31 | Henry Kieckhaus | ThermoMPNN: Transfer learning to leverage larger datasets for improved prediction of protein stability changes |
| 32 | Cansu Kose | Cross-Species Investigation into the Requirement of XPA for Nucleotide Excision Repair |
| 33 | Alex Neary | A Minimal Ribosome-Free Translation System as a Plausible Model for Prebiotic Peptide Formation |
| 34 | Kanishk Jain | Understanding the role of PHRF1 in transcriptional regulation and DNA damage response |
| 35 | Zhiyuan “Zoey” Yao | Develop the next generation CD20/19 therapeutic ligand with computational protein design |
| 36 | James Emerson | Sex Differences in Cardiac Excitation Contraction Coupling Revealed by Simultaneous Electrophysiology Imaging |
| 37 | Derek Bolhuis | Mechanistic investigation into reciprocal regulation between USP37 and the E3-ligase Anaphase Promoting Complex/Cyclosome |
| 38 | Nathanial Burkholder | PHF6 specifically recognizes the tail region of histone H3.3 and likely regulates expression of differentiation factor genes involved in chondroblastoma development |
| 39 | Leiah Carey | Combinatory Structural Biology of NRAS Q61 Melanomagenic Mutants |
| 20 | Venkata Chirasani | Exploring Biomolecular Complexity: Insights into Human Diseases and Molecular Mechanisms |