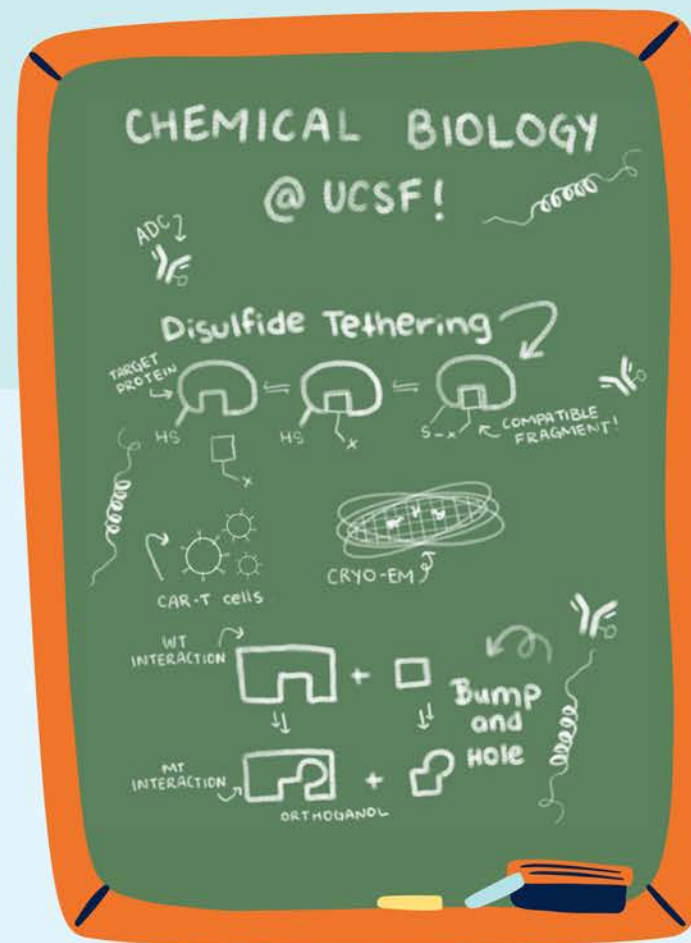


AN EXTRA SPECIAL THANKS TO...



CBBA DAY 2024

Chemical Biology in the Bay Area



University of California, San Francisco

Saturday, May 11th, 2024

Genentech Hall, 600 16th St, San Francisco,
CA 94158

AGENDA

Genentech Hall Auditorium

TIME	EVENT	SPEAKER
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8:30 AM	Poster Set up, Check in, and Breakfast!	
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9:30 AM	Introduction	Jason Gestwicki
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Session I

Session Chair: Linh Tram, UCSF

9:50 AM	You are what you eat: Macrophages in the tumor microenvironment	Regan Volk Zaro Lab, UCSF
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10:10 AM	Ribosomal biosynthesis of polyester-polyamide hybrids in vivo	Noah Hamlish Schepartz Lab, UCB
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10:30 AM	Molecular simulations of state-specific drug interactions with multiple cardiac ion channels to reveal mechanisms of arrhythmogenesis	Kyle Rouen Vorobyov Lab, UCD
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10:50 AM	BREAK	
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Session II

Session Chair: Angel Gonzalez-Valero, UCB

11:10 AM	Identifying small molecule ligands for PAS domains in the circadian clock	Diksha Sharma Partch Lab, UCSC
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11:30 AM	Small molecule glues for neoantigen peptide MHC presentation	Wenqi Shen Shokat Lab, UCSF
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11:50 AM	Chemoproteomics-enabled discovery of a covalent molecular glue degrader targeting NF- κ B	Ellie King Nomura Lab, UCB
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12:10 PM	Thank Sponsors!	Jason Gestwicki
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12:20 PM	Lunch and Poster Session	
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21 Photo-Brook rearrangement of acyl silanes as a strategy for photoaffinity probe design
Annika Page, Dean Toste Lab, UCB

22 A novel iron-sensing strategy reveals antioxidant response element regulation of intracellular labile iron pools
Aidan Pezacki, Christopher Chang Lab, UCB

23 Exploring the effects of intersubunit interface mutations on virus-like particle structure and stability
Paige Pistono, Matt Francis Lab, UCB

24 Backbone Extension Acyl Rearrangement (BEAR): A method to creating novel backbones in full length proteins produced in vivo
Leah Roe, Schepartz Lab, UCB

25 Harnessing ADAR Therapeutic Potential: Cellular Repair of MeCP2 Mutation Linked to Rett Syndrome with a Fully Sugar Modified Guide RNA
Prince Salvador, Beal Lab, UCD

26 Modulation of Endogenous Retroviruses by Histone Demethylases Enzymes KDM5A and KDM5B
Letitia Sarah, Fujimori Lab, UCSF

27 Small Molecule Glues for Neoantigen Peptide MHC Presentation
Wenqi Shen, Shokat Lab, UCSF

28 Development of a MALDI-tims-QTOF MS-based assay for enhanced directed evolution screening of KabC
Robert Shepherd, Laura Sanchez Lab, UCSC

29 Investigating the use of peptide nucleic acids (PNAs) in guide-strand design for DNA editing by ADAR
Abdul Shiraj, Fisher Lab, UCD

30 Structure-Guided Coenzyme A Synthetase Engineering for Biocatalytic Applications
Veronica Stafford, Michelle Chang Lab, UCB

31 Synthesis of Noncanonical Amino Acid-Containing Analogues of Bioactive Peptides
Elizabeth Stone, Michelle Chang Lab, UCB

32 Activity-Based Sensing Probes for One-Carbon Metabolites
Logan Tenney, Christopher Chang Lab, UCB

33 Novel Cationic Silyl Lipids to Control Lipid Nanoparticle Properties and Enhance RNA Delivery
Leah Thompson, Franz Lab, UCD

34 Identifying Common Vulnerabilities of Castration-Resistant Prostate Cancer Cells Using an Iron-Activable Probe
Linh Tram, Adam Renslo Lab, UCSF

35 Mechanistic Insights on [FeFe] Hydrogenase Maturation
Liam Twomey, Britt Lab, UCD

36 Development of a Tyrosinase-Powered Screening Assay for Cell Penetration
Avery Tytla, Francis Lab, UCB

37 MALDI Mass Spectrometry Imaging Analysis of Gene Expression and Metabolic Signatures in Wild Type Mouse Brain
Kyle Vanderschoot, Elizabeth Neumann Lab, UCD

38 SAR Study of N,N-Dimethyltryptamine Analogs for Hallucinogenic and Psychoplastogenic Potential
Anna Vernier, David Olson Lab, UCD

39 Restoring lost binding of mutant CRAF to 14-3-3 in Noonan Syndrome Type 5 for inhibition of the MAPK pathway
Johanna Virta, Michelle Arkin Lab, UCSF

40 Elucidating the Functional Significance of Zn²⁺ Coordinating Residues of MUTYH using Cellular Repair Assay
Tian Xia, Sheila David Lab, UCD

41 Searching for gut microbial metabolites that inhibit a human drug-efflux transporter
Chen Zhang, Peter Turnbaugh Lab, UCSF

42 Ultrafast Study of Excited State Dynamics of Amino Metal Halide Molecular Clusters
Heng Zhang, Jin Lab, UCSC

43 Development of Broad Spectrum β -Lactamase Inhibitors
Jeffrey Zheng, Adam Renslo Lab, UCSF

POSTERS

Genentech Hall, 1st and 2nd Floors

Session Chair: Professor Ted Holman, UCSC

Judges: Professor Ziyang Zhang, UCB
Professor Jack Taunton, UCSF
Professor Igor Vorobyov, UCD
Professor Laura Sanchez, UCSC

- 1 Probing the mechanism of selective halogenation by vanadium-dependent haloperoxidases
Jackson Baumgartner, McKinnie Lab, UCSC
- 2 Role of Crowded Cellular Environments in The Regulation of Inappropriate Repair by the DNA Base Excision Repair Glycosylase NEIL1
Joshua Bumgarner, David Lab, UCD
- 3 Genetically enabling Phosphorus Fluoride Exchange click chemistry in proteins
Li Cao, Lei Wang Lab, UCSF
- 4 Activating antisense oligonucleotide therapeutic for ADNP syndrome
Claire Caputo, David Segal Lab, UCD
- 5 Engineering Radical Halogenases for Non-native C—H Functionalization
Gabby Dolgonos, Michelle Chang Lab, UCB
- 6 Atomistic Simulation of an ADAR/RNA complex
Natalie Dugan, Beal Lab, UCD
- 7 Developing guidelines for permeable cyclic peptide-based PROTACs
Alexander Engstrom, Lokey Lab, UCSC
- 8 Glycoprotein in vitro N-glycan engineering using carbohydrate active enzymes (CAZymes) expressed in Escherichia coli
Jingxin Fu, Chen Lab, UCD
- 9 Exploring Glycosyl Hydrolase Active Site Plasticity for Aflatoxin Bioremediation
Trevor Gannalo, Siegel Lab, UCD
- 10 Synthesis and Chemoproteomic Profiling of Bis-Covalent Macrocyclic Peptide Molecular Glues
Carolyn Glasser, Nomura Lab, UCB
- 11 Enantioprofiling of the Mitochondrial Methionome Reveals Single-Atom Stereospecific in Protein N-Homocysteinylation
Angel Gonzalez-Valero, Christopher Chang Lab, UCB
- 12 Design of a STING Agonist Nanoparticle Using a Targeted Cell-Penetrating Viral Capsid for Glioblastoma Treatment
Paul Huang, Francis Lab, UCB
- 13 Exploring Ovary-Cell Co-Culture Extracts for 'Known Unknowns'
Ayyam Ibrahim, Sanchez Lab, UCSC
- 14 Development of an efficient chemoenzymatic strategy to for synthesizing homogeneous O-glycosylated glycopeptides
Hanzhang Jin, Xi Chen Lab, UCD
- 15 Accelerating Drug Discovery With DNA-Encoded Lipophilic Permeability Efficiency
Grant Koch, Lokey Lab, UCSC
- 16 Drugging the Cholesterol Garbage Truck PCSK9
Harshit Kolisetty, John Chorba Lab, UCSF
- 17 Elucidating the Mechanism of Small-Molecule Inhibitors to PCSK9
Kanika Leang, John Chorba Lab, UCSF
- 18 Satisfying Your Sweet Desires: Biological Production of Rare Sugars
Bryant Luu, Atsumi Lab, UCD
- 19 Enhanced ADAR Activity in Inefficiently Edited Substrates using Chemically Modified Oligonucleotides
Aashrita Manjunath, Beal Lab, UCD
- 20 RAM FAST Methodology to Evaluate DNA Glycosylase MutY mediated Repair of Oxidative DNA Damage
Steven Merrill, Sheila David Lab, UCD

AGENDA

Genentech Hall Auditorium

TIME

EVENT

SPEAKER

Session III

Session Chair: Chad Altobelli, UCSF

2:00 PM	Psychoplastogenic DYRK1A Inhibitors with Therapeutic Effects Relevant to Alzheimer's Disease	Hunter Warren Olson Lab, UCD
2:20 PM	Development and application of a MALDI-TIMS screening method for directed evolution of the algal kainoid synthase DsKabC	Austin Hopiavuori McKinnie Lab, UCSC
2:40 PM	Dissecting Quantitative Protease Drug Resistance Landscapes in High-Throughput	Nicholas Young Craik Lab, UCSF
3:00 PM	BREAK and Poster Breakdown	

Session IV

Session Chair: Natalie Dugan, UCSF

3:20 PM	An ATP-dependent ligase enables diverse protein bioconjugation chemistry	Andrew Whitten Chang Lab, UCB
3:40 PM	Small molecule glues for neoantigen peptide MHC presentation	Dr. Brian Metcalf, Global Blood Therapeutics
4:15 PM	Poster winners' Announcement & Thank You!	Jason Gestwicki
4:25 PM	Reception	
5:45 PM	Closing	

FORMER CSO OF GLOBAL BLOOD THERAPEUTICS. KEYNOTE SPEAKER

The discovery of Voxelotor (Oxbryta), for the treatment of sickle cell disease.

Sickle cell disease, affecting subjects of African and Arabian descent, is a genetic disease resulting from a single point mutation in the β chain of hemoglobin. The mutant hemoglobin polymerizes within red blood cells in situations of low oxygen pressure. Such rbc's present as brittle sickle-like shapes and induce painful vaso-occlusive crises. Genetic evidence demonstrates that when the mutant hemoglobin is naturally expressed with 15 – 30% non-polymerizing fetal hemoglobin, sickling does not occur. Other approaches to prevent hemoglobin polymerization therefore might also prove efficacious.

Two converging themes will be presented – the design of small molecules that bind to the mutant hemoglobin, increase its oxygen sensitivity and delay polymerization; and the deployment of the aldehyde functionality to achieve this. Aldehydes were previously considered to be “red flag” moieties not viable as drug candidates. Voxelotor, approved by the FDA is an orally bioavailable treatment for sickle cell disease and is the first aldehyde drug.



BRIAN METCALF, PH.D.

Biography

Brian Metcalf obtained his PhD in Chemistry from the University of Western Australia in 1970. Following postdoctoral studies at University College London and at Stanford, he began his industrial career at the Merrell Research Center in Strasbourg, France where his focus on suicide enzyme inhibitors directed at Gamma amino butyric acid transaminase (GABA-T) resulted in the approved drug for epilepsy, Vigabatrin (Sabril). After five years in France, he emigrated to the United States and spent the next 20 years in the pharmaceutical industry rising to SVP Discovery Chemistry and Platform Technologies at SmithKline Beecham. Along the way he was the co-inventor of inhibitors of aromatase and steroid 5- α reductase, both compounds reaching clinical trials. He left SB in 2000 prior to the SB/GSK merger, and after a brief period as CSO at Kosan, he moved to Incyte Pharmaceuticals as Head of Drug Discovery and then CSO. Four marketed kinase inhibitors were discovered and developed during his nine years at Incyte. These include Jacofi, Barocitinib, Capmatinib, and the topical version of Jacofi, Opzelura. Brian retired from Incyte in 2011, but soon accepted a consultancy at Global Blood Therapeutics, and then CSO of that company once it became a legal entity. His time at GBT resulted in the approved sickle cell drug Voxelotor, where he is a coinventor. Voxelotor received the Galien Prize for the Most Innovative Biotechnology Product in 2021. Brian retired again in 2014 but continues consulting with various biotech companies in the SF Bay Area. His interest in Biological Chemistry has led to the creation of an inaugural Chair of Biological Chemistry at his alma mater, UWA.