

# Pharmacological Sciences Training Program and Department Retreat

May 26, 2016

Scripps Seaside Forum



**UC San Diego**  
**SCHOOL OF MEDICINE**

*Pharmacological Sciences Training Program  
and Department Retreat  
May 26, 2016  
Scripps Seaside Forum*

8:30 am-9:30 am      Pharmacological Sciences Trainees & Training Faculty Breakfast Mixer  
(Trainees/Training Grant Faculty only)  
Ted Scripps Room and Courtyard

---

*ALL Department*

9:30 - 10:00 am      Check-in/Badge pickup  
10:00 - 10:15 am      WELCOME REMARKS: Joan Heller Brown

10:15 - 11:30 am      PRESENTATIONS BY SENIOR TRAINEES

10:15 am      Irene Tobias - Newton Lab (defended thesis April 2016)  
10:30 am      Charles Gray - Heller Brown Lab (defended thesis May 2016)  
10:45 am      Thomas Smith - Trejo Lab (6<sup>th</sup> year)  
11:00 am      Bryan Stephens - Handel Lab (6<sup>th</sup> year)  
11:15 am      Amabel Orogo - Gustafsson Lab (6<sup>th</sup> year)

---

11:30 - 12:15 pm      KEYNOTE LECTURE: "*Neurotransmitter transporters & the modulation  
of intracellular signaling pathways by amphetamines (everything I needed  
to know I learned in graduate school)*"

Susan Amara, PhD  
BMS Alumna & Scientific Director of the Intramural Research Program  
National Institute of Mental Health

---

12:15 - 1:15 pm      LUNCH

1:15 - 1:30 pm      Hang posters

1:30 - 3:30 pm      Poster Session and Judging

3:30 - 5:00 pm      HAPPY HOUR MIXER and Award Presentations

## Pharmacological Sciences Training Grant Faculty

Abagyan, Ruben, Ph.D	Professor	SSPPS	Structure based drug discovery and structural chemical genomics
Adams, Joseph, Ph.D.	Professor	Pharmacology	Mechanisms of protein kinase activation and catalytic function.
Almutairi, Adah, Ph.D.	Associate Professor	SSPPS, (Nano Engineering and Materials Science)	Bio- and light-degradable materials, drug and protein delivery, targetable/activatable MRI and PET agents, regenerative medicine, tissue engineering
Bandeira, Nuno, Ph.D.	Associate Professor	SSPPS, (Computer Science and Engineering)	Computational mass spectrometry, proteomics and metabolomics bioinformatics
Brown, Joan Heller, Ph.D.	Distinguished Professor & Chair	Pharmacology	Regulation of cell growth by G-protein coupled receptors in cardiovascular and CNS disease.
Carson, Dennis, M.D.	Professor	Medicine	Pathogenesis and treatment of arthritis and cancer.
Chang, Geoffrey, Ph.D.	Professor	SSPPS (Pharmacology)	Transporters, membrane protein structure, biofuel secretion, affinity maturation
Chun, Jerold, M.D., Ph.D.	Professor Adjunct Professor	The Scripps Research Inst. (UCSD Pharmacology and Neurosciences)	Development and function of the mammalian nervous system.
Daneman, Richard, Ph.D.	Assistant Professor	Pharmacology (Neurosciences)	Molecular mechanisms that regulate blood-brain barrier (BBB) function during health and disease.
Dennis, Edward, Ph.D.	Distinguished Professor	Pharmacology (Chemistry)	Regulation of lipid second messengers and signal transduction through phospholipases.
Dixon, Jack, Ph.D.	Distinguished Professor	Pharmacology (Cell & Molec Medicine)	Regulatory mechanisms of novel phosphates that respond to molecular signals.
Dorrestein, Pieter, Ph.D.	Associate Professor	SSPPS (Pharmacology)	Biosynthesis and functional roles of post-translational modifications involved in antibiotic resistance.
Evans, Ronald, Ph.D.	Professor Adjunct Professor	Salk Institute (UCSD Pharmacology)	Nuclear hormone receptor superfamily regulation of body homeostasis
Evans, Sylvia, Ph.D.	Professor	SSPPS (Pharmacology)	Genetic pathways underlying heart development as it relates to understanding congenital and adult heart disease.
Gerwick, William, Ph.D.	Professor	SSPPS (SI0)	Marine natural product for the treatment of human disease, their molecular pharmacology and pathways of biosynthesis.
Gilson, Michael, M.D., Ph.D.	Professor	SSPPS	Computer-aided drug discovery. molecular modeling.
Gonzalez, David, Ph.D.	Assistant Professor	Pharmacology (SSPPS)	Therapeutic leads for the treatment of antibiotic resistant bacterial pathogens by studying the chemical biology that governs the host-pathogen interaction.
Guan, Kun-Liang, Ph.D.	Distinguished Professor	Pharmacology	Regulation of cell growth and cell size with recent emphasis on the mTOR pathway.
Gustafsson, Asa, Ph.D.	Associate Professor	SSPPS (Pharmacology)	Mitochondrial dysfunction in heart failure; doxorubicin mediated-cardiotoxicity.
Gutkind, J. Silvio, Ph.D.	Professor	Pharmacology	Oncogenic activity of G proteins and G protein coupled receptors (GPCRs).

Handel, Tracy, Ph.D.	Professor	SSPPS (Pharmacology)	Structure and function of chemokines and their receptors and roles in cancer.
Hnasko, Thomas, Ph.D.	Assistant Professor	Neurosciences	Neural circuitry, drug addiction, synaptic transmission.
Hook, Vivian, Ph.D.	Professor	SSPPS (Pharmacology) (Neuroscience)	Proteolytic mechanisms in peptide neurotransmission and neurodegenerative diseases.
Howell, Stephen, M.D.	Professor	Medicine	Development of novel cancer drugs and drug delivery systems; molecular mechanisms of resistance to antineoplastic agents.
Insel, Paul, M.D.	Distinguished Professor	Pharmacology (Medicine)	G-protein-coupled receptors, their signaling pathways, effectors and their regulation.
Jain, Mohit, M.D., Ph.D.	Assistant Professor	Medicine (Pharmacology)	Metabolomic dissection of human physiology and disease.
Joiner, William, Ph.D.	Assistant Professor	Pharmacology	Molecular mechanisms and neuronal circuitry underlying regulation of sleep
Karin, Michael, Ph.D.	Distinguished Professor	Pharmacology	Mechanisms by which extracellular stimuli regulates gene inflammation and disease expression.
Linden, Joel, Ph.D.	Professor Adjunct Professor	La Jolla Institute of Allergy and immunology (UCSD Pharmacology)	Adenosine receptors, inflammation, sickle cell anemia.
Lipton, Stuart, M.D., Ph.D.	Professor Adjunct Professor	Scintillon Institute (UCSD Neurosciences)	CNS neurodegenerative and neuromuscular diseases, drug discovery
Marsala, Martin, M.D.	Professor	Anesthesiology	Pathophysiology of spinal ischemic and traumatic injury
McCammon, James, Ph.D.	Distinguished Professor	Pharmacology (Chemistry)	Computer simulation methods to study biomolecular structure, dynamics and function.
Murphy, Anne, Ph.D.	Associate Professor	Pharmacology	Mitochondrial target-based drug development
Newton, Alexandra, Ph.D.	Professor	Pharmacology	Molecular mechanisms of signal propagation and signal termination in the PI3 kinase and diacylglycerol signaling pathways
Nigam, Sanjay, M.D.	Professor	Medicine	Growth factors and genes required for the development of epithelial tissues such as kidney, breast and pancreas.
Nizet, Victor, M.D.	Professor	Pediatrics (SSPPS)	Molecular microbiology and immunology, antibiotic pharmacology, novel infectious disease therapeutics
Patel, Hemal, Ph.D.	Associate Professor	Anesthesiology	Caveolin in health and disease
Rao, Anjana, Ph.D.	Professor (Adjunct Professor)	La Jolla Institute for Allergy & Immunology (UCSD Pharmacology)	Regulation of calcium signalling and gene expression in the immune system; RNAi screens
Reya, Tannishtha, Ph.D.	Professor	Pharmacology	Stem cells, development, cancer biology and therapeutics, imaging
Sunahara, Roger, Ph.D.	Professor	Pharmacology	Relationship between hormone binding to GPRs and G-Protein activation
Stevens, Charles, M.D., Ph.D.	Adjunct Professor	Salk (Pharmacology)	Mechanisms responsible for synaptic transmission.

Taylor, Palmer, Ph.D.	Distinguished Professor	Pharmacology (SSPPS)	Structure and function of receptors, enzymes and adhesion molecules involved in cholinergic neurotransmission.
Taylor, Susan, Ph.D.	Distinguished Professor	Pharmacology (Chemistry)	Structure and biological function of one of the simplest members of the protein kinase family, cAMP-dependent protein kinase (PKA).
Trejo, JoAnn, Ph.D.	Professor	Pharmacology	Thrombin signaling, G protein-coupled receptors, membrane trafficking
Tsien, Roger, Ph.D.	Distinguished Professor	Pharmacology (Chemistry)	<i>In vivo</i> tumor imaging and therapy, synaptic plasticity, genetically targetable probes of signal transduction.
Tukey, Robert, Ph.D.	Professor	Pharmacology (Chemistry & Biochemistry)	Molecular genetics and xenobiotic receptor control of human UDP-glucuronosyltransferase and cytochrome P450 genes.
Villarreal, Francisco, M.D., Ph.D.	Professor	Medicine	The tissue protective properties of the flavonoid epicatechin with a focus on cardiac and skeletal muscle and associated impact on global metabolism.
Wang, Dong, Ph.D.	Assistant Professor	SSPPS	Transcription, DNA damage repair process, epigenetics, chemotherapy
Webster, Nicholas, Ph.D.	Professor	Medicine	Metabolic and neuroendocrine regulation of reproduction. RNA splicing in metabolic regulation. drug development for neurodegeneration.
Yang, Jing, Ph.D.	Professor	Pharmacology (Pediatrics)	Genes and the signaling pathways responsible for tumor metastasis.
Zhang, Jin, Ph.D.	Professor	Pharmacology	Spatiotemporal regulation of signal transduction

# Poster Presentations

Even Posters manned 1:30 – 2:30pm

Odd Posters manned 2:30 – 3:30pm

Poster #	Title	Category	Poster Presenter	Lab	Position
1	Examining ARRDC3 regulation of PAR1 signaling and trafficking in invasive breast carcinoma	Cancer biology	Arakaki, Aleena K	Trejo	Graduate student
2	Regulation of mRNA alternative splicing through phosphorylation	Protein phosphorylation and posttranslational modification	Aubol, Brandon E.	Adams	Post-doc
3	mTORC2 Functions as a Molecular Chaperone to Regulate the Folding and Activity of Protein Kinase C	Protein phosphorylation and posttranslational modification	Baffi, Timothy	Newton	Training grant student
4	Heterogeneity of the Blood-Brain Barrier	Other	Blanchette, Marie	Daneman	Post-doc
5	RhoA Regulation of Drp1 and Cardiac Mitochondrial Fission	Cardiovascular biology	Brand, Cameron	Brown	Post-doc
6	mTOR inhibition prevents rapid-onset of carcinogen-induced malignancies in a novel inducible HPV-16 E6/E7 mouse model	Cancer biology	Callejas Valera, Juan	Gutkind	Post-doc
7	A new structural landscape for ligand binding to the $\alpha 7$ nicotinic acetylcholine receptor	Neuropharmacology	Camacho H, Gisela A.	Taylor P.	Visiting graduate student
8	Active site mapping of Loxosceles phospholipase D: - biochemical and biological features	GPCRs and signaling	Chaim, Olga	Brown	Post-doc
9	An RNAi screen for chromatin regulators involved in Ogt-mediated cell viability	Other	Chen, Joyce	Rao	Training grant student
10	Involvement of the Cyclic AMP Pathway in Dendritic Cell Regulation	GPCRs and Signaling	Chinn, Amy	Insel	Training grant student
11	Regulation of the Nuclear PKA Holoenzyme	GPCRs and signaling	Clister, Terri	Zhang	Graduate student
12	Enhancement of neutrophil antimicrobial activity by the breast cancer drug tamoxifen	GPCRs and signaling	Corriden, Ross	Insel	Project Scientist
13	A secretory kinase complex regulates extracellular protein phosphorylation	post-translational modification; protein phosphorylation	Cui, Jixin	Dixon	Post-doc
14	Noncanonical PDZ Interaction between PKA RI $\alpha$ R368X Acrodysostosis Mutant and P-Rex1 PDZ Domain	structural and computational modeling	Del Rio, Jason	S. Taylor	Graduate student
15	Novel biomimetic nanoparticle strategies for treatment of invasive bacterial infections	Other	Escajadillo, Tamara	Nizet	Training grant student
16	Activation of YAP by the GNAQ Uveal Melanoma Oncogene through a Trio-regulated Rho GTPase Signaling Circuitry	GPCRs and signaling	Feng, Xiaodong	Gutkind	Post-doc

<b>Poster #</b>	<b>Title</b>	<b>Category</b>	<b>Poster Presenter</b>	<b>Lab</b>	<b>Position</b>
17	Spatiotemporal dynamics and regulation of cAMP and PKA in early stage hippocampal neurons	GPCRs and signaling	Gorshkov, Kirill	Zhang	Graduate student
18	Ubiquitin Plays An Atypical Role in GPCR Mediated p38 MAP Kinase Activation on Endosomes	GPCRs and signaling	Grimsey, Neil	Trejo	Post-doc
19	Phosphorylation of PKA Regulatory Subunit RI $\alpha$ by PKG: A Mechanism for "Desensitizing" the Type I PKA Holoenzyme	Protein phosphorylation and posttranslational modification	Haushalter, Kris	S. Taylor	Graduate student
20	A new class of targetable, genetically encoded single-color biosensors for multiplexed monitoring of phosphoinositides	GPCRs and signaling	Hertel, Fabian	Zhang	Post-doc
21	NLK mediates the osmotic stress signal to phosphorylate and activate YAP	Protein phosphorylation and posttranslational modification	Hong, Audrey	Guan	Training grant student
22	Fibroblast Activation Protein (FAP) regulates invadopodia function and tumor metastasis	Cancer biology	Jiang, Yike	Yang	Training grant student
23	ADAR-mediated RNA editing suppresses sleep by acting as a brake on glutamatergic synaptic plasticity	Neuropharmacology & other	Joiner, William	Joiner	Faculty
24	High Resolution Imaging and Computational Analysis of Hematopoietic Cell Dynamics In Vivo	Other	Koechlein, Claire	Reya	Training grant student
25	Are very long-term memories stored in the pattern of holes in the perineuronal net?	Other	Levram-Ellisman, Varda	Tsien	Project Scientist
26	Regulation of Hippo pathway transcription factor TEAD	GPCRs and signaling	Lin, Kimberly	Guan	Training grant student
27	GPR161 and smAKAP are Membrane-bound PKA-RI-Selective AKAP	GPCRs and signaling	Lu, Tsan-Wen	S. Taylor	Graduate student
28	The stem cell signal musashi is required for pancreatic cancer progression and therapy resistance	Cancer biology	Lytle, Nikki	Reya	Training grant student
29	The role of Tyk2 in matrix stiffness-driven EMT and metastasis	Cancer biology	Majeski, Hannah	Yang	Training grant student
30	Single-color fluorescent biosensors for multiplexed enzyme activity imaging	GPCRs and signaling	Mehta, Sohum	Zhang	Project Scientist
31	Activated Protein C Promotes Cytoprotective Signaling through Protease-Activated Receptor 1, Sphingosine-1-Phosphate Receptor 1, and Caveolin-1	GPCRs and signaling	Menzies, Patrick Gomez	Trejo	Training grant student

<b>Poster #</b>	<b>Title</b>	<b>Category</b>	<b>Poster Presenter</b>	<b>Lab</b>	<b>Position</b>
32	Integrated high throughput screening and metabolomics of natural products libraries for rapid identification of cathepsin modulators	other (marine natural products, screening)	Miller, Bailey	Gerwick and Hook	Graduate student / former trainee
33	Genetically-Encoded Biosensors for Visualizing Live-cell Biochemical Activity at Superresolution	Protein phosphorylation and posttranslational modification	Mo, Gary	Zhang	Post-doc
34	Allosteric Regulation of Phospholipase A2 by Membranes.	Structure and computational modeling	Mouchlis, Varnavas	Dennis	Post-doc
35	Targeting the Mla pathway in multi-drug resistant Gram negative bacteria to sensitize them to the innate immune system	Other	Munguia, Jason	Nizet	Training grant student
36	Macrophage eicosanoid biosynthesis elicited by oxidized phospholipids and oxidized low density lipoprotein	Cardiovascular biology	Navratil, Aaron R.	Dennis	Post-doc
37	Comprehensive long non-coding RNA expression profiling from the TCGA HNSCC RNA-sequencing data	Other	Nohata, Nijiro	Gutkind	Post-doc
38	Acquisition of Mitochondrial DNA Mutations Impairs Mitochondrial Function in Cardiac Progenitor Cells	Cardiovascular biology	Orogo, Amabel	Gustafsson	Training grant student
39	Visualizing structure and activity-dependent changes in the perineuronal net, a putative structure for long-term memory	Neuropharmacology	Palida, Sakina	Tsien	Training grant student
40	Using CRISPR to identify novel regulators of the Hippo pathway	GPCRs and signaling	Plouffe, Steven	Guan	Training grant student
41	Dynamic Regulation of the Blood-Brain Barrier by Neural Activity	Neuropharmacology	Pulido, Robert	Daneman	Training grant student
42	Thrombin-induced p38, MK2, and HSP27 signaling cascade in endothelial barrier permeability	GPCRs and Signaling section	Rada, Cara	Trejo	Training grant student
43	Whole genome single cell sequencing confirms the presence of mosaic aneuploidy throughout cortical development	Neuropharmacology	Rohrback, Suzanne	Chun	Training grant student
44	FLARE: Single-Color, Ratiometric Fluorescent Biosensors of Signaling Activities	GPCRs and signaling	Ross, Brian	Zhang	Graduate student
45	Understanding the Metabolic Underpinnings of Extrinsic Proteotoxicity	Other' category	Sapp, Valerie	Jain	Training grant student
46	Identification of neural circuitry and genes that control sleep need	Neuropharmacology & Other	Satterfield, Lawrence Kendal	Joiner	Training grant student



<b>Poster #</b>	<b>Title</b>	<b>Category</b>	<b>Poster Presenter</b>	<b>Lab</b>	<b>Position</b>
47	Parkin Contributes to the Development of Cardiac Hypertrophy in Response to Cardiac Pressure Overload	Cardiovascular Biology	Shires, Sarah	Gustafsson	Training grant student
48	Protease-activated Receptor-4 Signaling and Intracellular Trafficking: Regulation by Adaptor Protein Complex-2 Independent of $\beta$ -arrestins	GPCR category	Smith, Thomas	Trejo	Training grant student
49	Towards a complete model of the CXCR4: CXCL12 signaling complex	GPCRs and signaling	Stephens, Bryan S.	Handel	Training grant student
50	Delving into the mechanism of LPAR signaling in hydrocephalus	GPCRs and signaling	Stoddard, Nicole	Chun	Training grant student
51	Defining the binding pocket of a potent inhibitor in the active site of Lipoprotein-associated phospholipase A2	Structure and computational modeling	Vasquez, Alexis	Dennis	Graduate student
52	mTOR inhibition regulates translational control through 4EBP1 dephosphorylation	Cancer biology	Wang, Zhiyong	Gutkind	Post-doc
53	The Role of CaMKII $\delta$ in Angiotensin II-Induced Cardiac Inflammation and Fibrosis	Cardiac biology category	Willeford, Andrew	Brown	Graduate student
54	GPCRs expressed by Cancer-associated fibroblasts are potential therapeutic targets in pancreatic cancer	Cancer pharmacology	Willey, Shu	Insel	Post-doc
55	Ly6h Regulation of Nicotinic Acetylcholine Receptors	Neuropharmacology	Wu, Meilin	Joiner	Post-doc
56	MRTF-A and YAP exert dual control in GPCR and RhoA-mediated transcriptional regulation and cell proliferation	GPCRs and signaling	Yu, Olivia	Brown	Training grant student
57	Mechanistic Investigation into Signaling Specificity of Akt/mTOR Signaling	GPCRs and signaling	Zhou, Xin	Zhang	Post-doc
58	Intramolecular C2-Kinase Domain Interactions Autoinhibit Conventional Protein Kinase C	protein phosphorylation and posttranslational modification	Callender, Julia	Newton	Graduate Student
59	Tumor suppressor phosphatase PHLPP regulates gene expression	Protein phosphorylation and posttranslational modification	Cohen-Katsenelson, Ksenya	Newton	Post-doc
60	Cancer-Associated Fusion Proteins Reveal Inhibitory Role of Protein Kinase C's Processing Phosphorylations	Protein phosphorylation	Van, Angela	Newton	Graduate student

## Posters by Lab

Adams: 2	Jain: 45
Heller Brown: 5, 8, 53, 57,	Joiner: 23, 46, 55
Chun: 43, 50	Newton: 3, 58, 59, 60
Daneman: 4, 41	Nizet: 15, 35
Dennis: 34, 36 51	Rao: 9
Dixon: 13	Reya: 24, 28
Gerwick/Hook: 32	S. Taylor: 14, 19, 27
Guan: 21, 26, 40	P. Taylor: 7
Gustafsson: 38, 47	Trejo: 1, 18, 31, 42, 48
Gutkind: 6, 16, 37, 52	Tsien: 25, 39
Handel: 49	Yang: 22, 29
Insel: 10, 12, 54	Zhang: 11, 17, 20, 30, 33, 44, 57

## Posters by Position

Graduate Students: 1, 7, 11, 14, 17, 19, 27, 32, 44, 51, 58, 60

Postdocs: 2, 4, 5, 6, 8, 13, 16, 18, 20, 33, 34, 36, 37, 52, 54, 55, 57, 59

Project Scientists/Specialists: 12, 25, 30

Training Grant Students: 3, 9, 10, 15, 21, 22, 24, 26, 28, 29, 31, 35, 38, 39, 40, 41, 42, 43, 45, 46, 47, 48, 49, 50, 56,

## Posters by Category

Cancer biology: 1, 6, 22, 28, 29, 54

Cardiovascular biology: 5, 36, 38, 47, 53,

GPCRs and signaling: 8, 10, 11, 12, 16, 17, 18, 20, 26, 27, 30, 31, 40, 42, 44, 48, 49, 50, 56, 57,

Neuropharmacology: 55, 43, 41, 39, 7, 23, 46

Protein phosphorylation and posttranslational modification: 2, 3, 13, 19, 21, 33, 58, 59, 60

Structure and computational modeling: 14, 34, 51

Other: 4, 9, 15, 24, 25, 32, 35, 37, 45







