Bio-X Undergraduate Research Program

2012 Poster Titles

"*S. haematobium* Egg-Induced Microvascular Permeability in the Bladder"
Brittany Bankston[1], Kim Thai[3], Daniela Brisset[3], Michael Hsieh[2]
Departments of Biomechanical Engineering[1] and Urology[2] and School of Medicine[3],
Stanford University

"Factors Influencing Pneumothorax Rate during CT-Guided Lung Biopsy: Patient Outcomes and Impacts of Tract Embolization"
Shaughnessy Brennan Brown[1], Andrew Tran[3], Jarrett Rosenberg[2], David Hovsepian[4]
Departments of Mechanical Engineering[1] and Radiology[2] and School of Medicine[3], Stanford University; Department of Radiology[4], Stanford University Medical Center

"Direct Conversion of Astrocytes to Neurons through Overexpression of MicroRNAs at the Single Cell Level"
Victoria Chang[1,2], Alfred Sun[1,2], Gerald Crabtree[1,2]
Howard Hughes Medical Institute[1] and Department of Developmental Biology[2], Stanford University

"ACL Injury Prevention in Female Basketball Players"
Dominique Dabija[1], Rebecca Shultz[2], Scott Delp[1], Jason Dragoo[2]
Departments of Bioengineering[1] and Orthopedics[2], Stanford University

"Probing Enzymatic Reactions with Desorption Electrospray Ionization Mass Spectrometry (DESI-MS)"
Nick Davis[1], Joshua Elias[2]
Departments of Bioengineering[1] and Chemical & Systems Biology[2], Stanford University

"A Novel Approach to Surveying Colorectal Samples for Copy-Number Variance"
Brian Deutsch[1], Lincoln Nadauld[1], Laura Miotke[1], Rowza Rumma[1], Hanlee Ji[1], Calvin Kuo[1]
Department of Oncology[1], Stanford University

"Mechanism of TCF21 Regulation by Coronary Heart Disease Associated Variation at 6q23"
Roxanne Diaz-Caceres[1], Nicholas Leeper[1], Azad Raiesdana[1], Clint Miller[1], Thomas Quertermous[1]
Division of Cardiovascular Disease Research[1], Stanford University

"The Phenotype of EWS Knockdown through Cell-Cycle and Immunofluorescence"
Analysis in the Context of DNA Damage
Sadia Dimbil[1], Bethsaida Nieves[1], Alejandro Sweet-Cordero[1]
Department of Pediatrics[1], Stanford University

"Characterization of Epigenetic Reprogramming in Early Mouse and Human Embryogenesis"
Grace Do[1], Mark Wossidlo[1], Renee Reijo Pera[1]
Institute for Stem Cell Biology and Regenerative Medicine[1], Stanford University

"Developing an *In Vitro* Platform for Investigating Microtubule Interactions"
Everett Frost[1], Michael T. Maloney[2], Yanmin Yang[2]
Departments of Bioengineering[1] and Neurology[2], Stanford University

"The Role of Neuronal Activity in Oligodendrocyte Precursor Cell Proliferation and Differentiation"
Andrea Goldstein[1], Erin Gibson[1], Michelle Monje[1]
Department of Neurology[1], Stanford University

"Short Term Experience-Dependent Plasticity in Human Visual Cortex"
Alex S. Greaves[1], Faraz Farzin[1], Anthony M. Norcia[1]
Department of Psychology[1], Stanford University

"Intelligent Selection Reaction Monitoring to Increase Throughput and Sensitivity in Low Abundant Protein Quantification"
Casey Haaland[1], Robert Ahrends[1], Kyle Kovary[1], Mike Bogan[2], Mary Teruel[1]
Department of Chemical & Systems Biology[1] and SLAC[2], Stanford University

"New *In Vivo* Optogenetic Targeting Strategy"
Minsuk Hyun[1,2], Joanna Mattis[1,5], Lief Fenno[1,5], Charu Ramakrishnan[1], Karl Deisseroth[1,3,4]
Departments of Bioengineering[1], Biology[2], and Psychiatry & Behavioral Sciences[3], Howard Hughes Medical Institute[4], and Neuroscience Program[5], Stanford University

"The Integrative Capacity of the Nonvisual Response to Light in Mice"
Jesse Ikeme[1], Fanuel Muindi[1], H. Craig Heller[1]
Department of Biology[1], Stanford University

"The Effect of PI3K Inhibition on Cutaneous T-Cell Lymphoma (CTCL) Growth"
Candice Kim[1], Alexander Ungewickell[1, 2, 3], Paul Khavari[1]
Departments of Dermatology[1], Hematology[2], and Oncology[3], Stanford University

"FreeSurfer Analysis in a Randomized Controlled Trial of Donepezil in Fragile X Syndrome"
Benjamin King[1,2], Mira M. Raman[1,2], Mai Manchanda[1,2], Allan L. Reiss[1,2]
Center for Interdisciplinary Brain Sciences Research[1] and Department of Psychiatry & Behavioral Sciences[2], Stanford University

"Donor Cell Line Dependent Variation in *listeria monocytogenes* Infection"
Alexandra Kuhlmann[1], Michelle Rengarajan[1], Julie Theriot[1]
Department of Biochemistry[1], Stanford University

"Cellular and Molecular Profiles of Sphingosine-1-Phosphate Receptor1 (S1P1) Signaling in Experimental Autoimmune Encephalomyelitis and Correlation with High Resolution Magnetic Resonance Imaging"
Jasmine Kyi[1], Maya K. Desai[1], Christopher S. Garris[1], Jason Hsu[2,3], Yingxiang Huang[1],
Lauren Tang[1], Brian Rutt[2], May H. Han[1,4]
Departments of Neurology & Neurological Sciences[1], Radiology[2], and Electrical Engineering[3] and Interdepartmental Program in Immunology[4], Stanford University

"Investigating Cysteine Residues in Wnt3a: Structural Insights into a Novel Tissue Regenerative Drug"
Katherine Lee[1,2], Girija Dhamdhere[2], Jill A. Helms[2]
Departments of Human Biology[1] and Surgery[2], Stanford University

"Assessing p63 Dynamics in Early Human Skin Development"
Eric J. Liaw[1], Sandra P. Melo[1], Anthony E. Oro[1]
Program in Epithelial Biology[1], Stanford University

"Predicting the Development of Eating Disorders in Young Girls at Familial Risk for Depression"
Kali F. Lindsay[1], Hannah W. Burley[1], Katharina Kircanski[1], Ian H. Gotlib[1]
Department of Psychology[1], Stanford University

"Examining Axonal Transport in Huntington's Disease Using Microfluidic Chambers"
Jonathan Lu[1], Michael T. Maloney[1], Yanmin Yang[1]
Department of Neurology[1], Stanford University

"Detecting Temporal Patterns in Clinical Descriptions of Mental Illness"
Svetlana Lyalina[1,2], Bethany Percha[3], Nigam Shah[3,4], Russ B. Altman[1,4,5]
Departments of Bioengineering[1], Computer Science[2], Biomedical Informatics[3], Medicine[4], and Genetics[5], Stanford University

"Intranasal Oxytocin Treatment for Social Deficits in Children With Autism"
Amanda Manorot[1], Dean S. Carson[1], Antonio Y. Hardan[1], Karen J. Parker[1]
Department of Psychiatry & Behavioral Sciences[1], Stanford University

"Elucidating the Role of COMPASS/ASH-2 H3K4 Trimethylation Complex in Dietary Restriction and Longevity of *C. elegans*"
Yifei Men[1], Shuo Han[1], Anne Brunet[1]
Department of Genetics[1], Stanford University

"Function of a Novel Non-Coding RNA in the TNFa-induced Inflammatory Response"
Megan Mikhail[1], Nicole Rapicavoli[1], Kun Qu[1], Jiajing Zhang[1], Howard Y. Chang[1]
Department of Epithelial Biology[1], Stanford University

"Probing the Effects of Neck-Linker Length Modulation on Kinesin Mechanochemistry"
Bojan V. Milic[1,2], Johan O. L. Andreasson[3], Steven M. Block[1,4]
Departments of Biology[1], Chemistry[2], Physics[3], and Applied Physics[4], Stanford University

"Understanding Maize Anther Development Using Solid State NMR"
Katherine Murphy[1], Rachel Egger[1], Lynette Cegelski[2], Virginia Walbot[1]
Departments of Biology[1] and Chemistry[2], Stanford University

"Endothelial Cells Sensing and Responding to Disturbed Flow"
Charlotte Poplawski[1], Maggie Ostrowski[1], Gerald Fuller[1], Alex Dunn[1]
Department of Chemical Engineering[1], Stanford University

"Lineage Hierarchies in Pancreatic Ductal Adenocarcinoma"
Julia Nguyen[1], Rebecca Yanovsky[1], Ryan Chow[1], Geoffrey W. Krampitz[2], Jeffrey A. Norton[2], Thomas M. Krummel[2], Irving L. Weissman[1]
Institute of Stem Cell Biology and Regenerative Medicine[1] and Department of Surgery[2], Stanford University

"Granulocyte-Macrophage Progenitors Acquire the Ability to Evade Phagocytosis in High-Risk Myelodysplastic Syndrome by Differential Expression of Calreticulin and CD47"
John V. Pluvinage[1], Wendy W. Pang[1,2], Elizabeth A. Price[3], Kunju Sridhar[3], Peter L. Greenberg[3], Stanley L. Schrier[3], Irving L. Weissman[1,2]
Institute for Stem Cell Biology and Regenerative Medicine, Ludwig Center for Stem Cell Research[1] and Departments of Pathology[2] and Medicine[3], Stanford University

"Ethanol Actions on GABA Synapses in Hippocampal Slices"
Edmund Posadas[1], Beza Dagne[1], Melis Sunay[2], M. Bruce MacIver[2]
Departments of Biology[1] and Anesthesia[2], Stanford University

"rAAV Mediated Gene Editing in Human Stem Cells"
Anand Rajan[1], Samuele Marro[1], Marius Wernig[1]
Department of Stem Cell Research[1], Stanford University

"Assessing Regulatory Variation Using Allele-Specific Expression"
Katie Riklin[1], Mark Piercy[2], Mauro Palo[2], Xin Li[2], Konrad Karczewski[3], Alexis Battle[4], Stephen Montgomery[2]
Departments of Human Biology[1], Pathology[2], Biomedical Informatics[3], and Computer Science[4], Stanford University

"Hedgehog Signaling Pathway Activation in the Hematopoietic Niche"
Max Silverstein*, Wan-Jin Lu[1], Phillip A. Beachy[1]
(*undeclared) Institute for Stem Cell Biology and Regenerative Medicine, Howard Hughes Medical Institute[1], Stanford University

"Elucidating the Role of the Non-Coding RNA Neat 1 in p53-Mediated Cell Cycle Arrest and Apoptosis"
Carolyn Sinow[1], Stephano S. Mello[1], Laura Attardi[1]
Department of Radiation Oncology[1], Stanford University

"Role of MHC Class I Interactions with Ly49 in Neuronal Growth"
Bryce Small[1], Lori Phillips[1,2], Olivia Martinez[1]
Departments of Surgery[1] and Neurosurgery[2], Stanford University

"Synthesis of Guanidinium Toxin Analogs for Sodium Ion Channel Study"
Zahra Harati Taji[1], James Walker[1], Arun Thottumkara[1], Justin Du Bois[1]
Department of Chemistry[1], Stanford University

"Multimodal Gold Nanorods for *In Vivo* Imaging of Ovarian Cancer"
Prem Thottumkara[1], Jesse Jokerst[1], Adam Cole[1], Sam Sanjiv Gambhir[1]
Molecular Imaging Program[1], Stanford University

"Identifying Modifiable Risk Factors for Stress Fractures in Distance Runners"
Thea Tran[1], Adam Tenforde[2], Adam Daoud[2], Jenny Yon[1], Michael Fredericson[2], Drew Nelson[1]
Department of Mechanical Engineering[1] and School of Medicine[2], Stanford University

"Characterizing the Effects of Intracellular Phalloidin on Human Embryonic Kidney (HEK) Cells in the Presence of Latrunculin B and Y27632"
Tony Tzeng[1], Robert Durruthy-Durruthy[2], Mirko Scheibinger[2], Stefan Heller[2]
Departments of Biology[1] and Otolaryngology[2], Stanford University

"Investigating the Role of Rspondins and GPR124 in CNS Angiogenesis"
Dyvon Walker[1], Junlei Chang[1], Teresa Reyes[1,2], C. Andrew Bonham[3], Calvin Kuo[1,2]
Departments of Hematology[1], Cancer Biology[2], and Surgery[3], Stanford University

"Peristat Online Visual Field Screening for Glaucoma"
Sean K. Wang[1], Robert T. Chang[1]
Department of Ophthalmology[1], Stanford University

"Thermosensory Neurons Maintain Homeostasis in *C. elegans*"
Virginia Wang[1], Sam Lasse[1], Miriam Goodman[1]
Department of Molecular & Cellular Physiology[1], Stanford University

"Emotion Regulation in Adolescents with Autism Spectrum Disorders"
Whitney Wells[1], Andrea Samson[2], Antonio Hardan[3], James Gross[2]
Departments of Human Biology[1], Psychology[2], and Psychiatry & Behavioral Science[3], Stanford University

"Optogenetic Stimulation of Motor Cortex Neurons Promotes Recovery After Stroke"
Wyatt J. Woodson[1,2], Michelle Y. Cheng[1,4,5], Eric H. Wang[1], Stephanie Wang[1], Guohua Sun[1], Alex G. Lee[3], Lief Fenno[2], Karl Deisseroth[2,3], Gary K. Steinberg[1,4,5]
Departments of Neurosurgery[1], Bioengineering[2], and Psychiatry[3], Stanford Stroke Center[4], and Stanford Institute for Neuroinnovation and Translational Neurosciences[5], Stanford University

"Neuroendocrine Tumor Cancer Stem Cells and Immunotherapies"
Rebecca Yanovsky[1], Julia Nguyen[1], Geoffrey W. Krampitz[2], Jeffrey A. Norton[2], Thomas M. Krummel[2], Irving L. Weissman[1]
Institute of Stem Cell Biology and Regenerative Medicine[1] and Department of Surgery[2], Stanford University

"Examining the Role of MYC in BCR-ABL- and RAS-Induced Lymphoma upon Oncogene Inactivation"
Christine Yost[1], Yulin Li[2], Dean Felsher[2]
Departments of Biology[1] and Division of Oncology (Departments of Medicine and Pathology)[2], Stanford University

Bio-X Undergraduate Research Program

2011 Poster Titles

"Quantitative Investigation of Adipogenetic Proteins Through Protein Separation and Targeted Mass Spectrometry"
Christopher Brunson[1], Robert Ahrends[2], Josh Elias[2], Randall Mann[3], Mary Teruel[2]
Departments of Chemical Engineering[1] and Chemical and Systems Biology Operations[2], Stanford University; Howard Hughes Medical Institute[3]

"Visual Experience Dependent Regulation of Plasticity Genes"
Sarah Cheng[1], Jaimie Adelson[2], Barbara Brott[1], Carla Shatz[1,2]
Departments of Biology[1] and Neurosciences[2], Stanford University

"Rare Variant Detection on the Viral Genome"
Anna Cushing[1], Patrick Flaherty[2], Hanlee Ji[3]
Departments of Biomedical Computation[1], Biochemistry[2], and Oncology[3]; Stanford University

"Towards Cellulosic Ethanol: Determining the Limitations for Xylose Growth in *S. cerevisiae*"
Michael Davies[1], Jared Wenger[2], Gavin Sherlock[2]
Departments of Biology[1] and Genetics[2], Stanford University

"Is there Differential MAP8 Expression in Alzheimer's Disease?"
Everett Frost[1], Michael Maloney[2], Yanmin Yang[2]
Departments of Human Biology-Neurobiology[1] and Neurology[2], Stanford University

"Investigations of Eye Tracking During Encoding and Recognition of Visual Categories"
Makiko Fujimoto[2], Alina Liberman[1], Golijeh Golarai[1], Kalanit Grill-Spector[1]
Department of Psychology[1], Stanford University; undeclared major[2]

"Elucidating the Role of Candidate Genes in Drosophila Insulin Secretion and Growth Regulation"
Andrea Goldstein[1], Julie Ni[1], Matthew Scott[1,2,3]
Departments of Developmental Biology[1], Genetics[2], and Bioengineering[3]; Stanford University

"Personalizing Treatment Plans Using Deep Inspiration, Expiration, and Free Breathing"
Eric Johnston[1,2], Maximillian Diehn[3], Bill Loo[3], Peter Maxim[3]
Departments of Physics[1], Electrical Engineering[2], and Radiation Oncology[3]; Stanford University

"Optogenetic Feedback Control of Genetically Targeted Populations of Neurons in a Freely Moving Mouse"
Isaac Kauvar[1], Logan Grosenick[2], Kelly Zalocusky[2], Karl Deisseroth[3,4]
Departments of Engineering Physics[1], Neuroscience[2], Bioengineering[3], and Psychiatry and Behavioral Sciences[4]; Stanford University

"Carbon Nanotubes for Imaging and Cancer Treatment"
Daniel Vinh, Joshua Robinson, Guosong Hong, Hongjie Dai
Department of Chemistry, Stanford University

"Ongoing Mutation in Follicular Lymphoma"
Chen Lossos[1], Behnaz Taidi[2], Shoshana Levy[2], Ron Levy[2]
Departments of Biology[1] and Oncology[2], Stanford University

"Protein and mRNA Expression of Human Embryonic-Derived Neural Progenitor Cells and Potential Mechanisms of Interaction with the Post-Stroke Brain Environment"
Sam Lawrence[1,2], Tenille Smith[3], Nancy Wang[3], Raphael Guzman[4]
Departments of Human Biology[1], Neurobiology[2], Surgery[3], and Neurosurgery[4]; Stanford University

"Cancer Transcriptome Remodeling by Oncogenic BRAF"
Nicholas Mascarenhas[1], Ross Flockhart[2], Paul Khavari[2]
Departments of Biology[1] and Dermatology[2], Stanford University

"Comparing Communication Change Across 12 Weeks in Children with Autism After Their Parents' Participation in a Parent Education Group Versus a Pivotal Response Training Group"
Christina Mich[1], Grace Gengoux[2], Mendy Minjarez[2], Kari Berquist[2], Rachel Travolta[2], Robin Libov[2], Antonio Hardan[2]
Departments of Psychology[1] and Psychiatry & Behavioral Sciences[2], Stanford University

"Probing the Effects of Neck-Linker Length Modulation on Kinesin Mechanochemistry"
Bojan Milic[1,2], Steven Block[3], Johan Andreasson[4]
Departments of Biochemistry[1], Biophysics[2], Applied Physics[3], and Physics[4]; Stanford University

"Microchip Capillary Electrophoresis for High-Resolution RNA Separation and Analysis"
Raman Nelakanti[2], Sam Kim[1], Richard Zare[1]
Department of Chemistry[1], Stanford University; undeclared major[2]

"Learning-Evoked Neurogenesis Provides Cognitive Flexibility"
Vivian Ngo[1], Ursula Haditsch[2], Theo Palmer[2]
Departments of Biology[1] and Neurosurgery[2], Stanford University

"Investigating the Functions of M18BP1 and CENP-C in Centromeric Chromatin Assembly"
Andy Nguyen[1], Corey Meyer[2], Ben Moree[2], Bradley French[2], Aaron Straight[2]
Departments of Chemistry[1] and Biochemistry[2], Stanford University

"Engineering Biomimetic Hydrogels to Enhance Vascular Differentiation of Human Stem Cells"
Michelle Nii[1], Anthony Behn[2], Fan Yang[2,3]
Departments of Materials Science & Engineering[1], Orthopedic Surgery[2], and Bioengineering[3]; Stanford University

"Development of Stable Knottin Scaffolds for Protein Engineering"
Heidi Norton[1], Sarah Moore[2], Alan Leung[3], Jennifer Cochran[2]
Departments of Materials Science & Engineering[1], Bioengineering[2], and Chemical Engineering[3]; Stanford University

"Gadolinium Doped Silica Nanoparticles as Multimodal Contrast Agents for Ultrasound and MRI Tracking of Mesenchymal Stem Cells *In vivo*"
Christine Khademi[1,2], Jesse Jokerst[3], Sam Gambhir[3]
Departments of Biology[1], Neurobiology[2], and Radiology[3]; Stanford University

"Gene Targeting and Characterization of Induced Pluripotent Stem Cells Derived From Patients Affected By *Epidermolysis Bullosa*"
John Hawkins[1], Bahareh Derafshi[2], Vittorio Sebastiano[3], Marius Wernig[4]
Departments of Human Biology[1], Stem Cell Biology[2], Obstetrics & Gynecology[3], and Pathology[4]; Stanford University

"Characterizing the Morphospace of *Dictyostelium discoideum* and the Correlation with its Migration Dynamics"
Tunmise Olayinka[1], Tony Tsai[2,3], Julie Theriot[2,4]
Departments of Math & Computational Science[1], Biochemistry[2], Chemical and Systems Biology[3], and Microbiology & Immunology[4]; Stanford University

"Inhibiting Botulin Toxin"
Oscar Ortiz[1], Paul Novick[1], Jorge Zuniga[2], James Burnette[3], Laura Gomba[3], Axel Brunger[2], Vijay Pande[1]
Departments of Chemistry[1] and Molecular & Cellular Physiology[2], Stanford University; National Institute of Health[3]

"Characterization of Noncoding RNA 964 in the DNA Damage Response"
Ashwin Peres-da-Silva[1], Tiffany Hung[2], Howard Chang[3]
Departments of Biology[1], Cancer Biology[2], and Dermatology[3]; Stanford University

"Circuit Level Analysis of Aesthetic Effects on Synaptic Integration"
Edmund Posadas[1], Melis Sunay[2], Bruce MacIver[2]
Departments of Biology[1] and Anesthesia[2], Stanford University

"The let-7 family of miRNAs and Cardiovascular Development"
Lily Saadat[1], Ingrid Ibarra[2], Reza Ardehali[3], Irv Weissman[4]
Departments of Biology[1], Stem Cell Biology[2], Cardiovascular Medicine[3], and Pathology[4]; Stanford University

"Disrupting the Function of Paired-Immunoglobulin-Like Receptor B PirB"
Richard Sapp[1], David Bochner[2], George Vidal[2], Carla Shatz[1,2]
Departments of Biology[1] and Neuroscience[2], Stanford University

"Tympanic Border Cells are Wnt-Responsive and Act as Stem/Progenitor Cells in the Postnatal Mouse Cochlea"
Zahra Nabi Sayyid[1,2], Taha Adnan Jan[3], Renjie Chai[3], Anping Xia[3], Saku Tapani Sinkkonen[3], Jared Ruben Levin[3], Yi Arial Zeng[4,5], Stefan Heller[3], Roel Nusse[4], Alan Cheng[3]
Departments of Biology[1], Anesthesia[2], Otolaryngology[3], and Developmental Biology[4], Stanford University; Howard Hughes Medical Institute[5]

"Culturing Intestinal Stem Cells"
Lilly Shi[4], Kelley Yan[1], James Su[2], Sarah Heilshorn[2], Calvin Kuo[3]
Departments of Gastroenterology[1], Materials Science & Engineering[2], and Medicine[3], Stanford University; undeclared major[4]

"*In vitro* and *In vivo* Analysis of Transglutaminase 2 Mutants with Altered Allosteric Properties"
Rebekah Silva[1], Xi Jin[1], WeiWei Li[1], Chaitan Khosla[2]
Departments of Chemistry[1] and Chemical Engineering[2], Stanford University

"Proliferation and Signaling Behaviors Controlling Muscle Stem Cell Self-Renewal/Expansion Within an Bioengineered Niche Culture Platform"
Steven Lee[1], Ben Cosgrove[2], Helen Blau[3]
Departments of Bioengineering[1], Radiology[2], Microbiology & Immunology[3]; Stanford University

"Biomechanics of Gait Analysis: Streamlining the Vicon Motion Capture System"
Lauren Taylor[2], Rebecca Shultz[1], Scott Delp[3,4]
Human Performance Lab[1] and Departments of Biomechanical Engineering[2], Bioengineering[3], and Mechanical Engineering[4]; Stanford University

"The Transcriptional Regulation of CNS Myelination by Oligodendrocytes"
Annie Tran[1], Anja Scholze[2], Ben Barres[3]
Departments of Biology[1], Developmental Biology[2], and Neurobiology[3]; Stanford University

"Molecular Therapies Against Small Cell Lung Cancer"
Sean Valle[1], Jamie Conklin[3], Julien Sage[2,3]
Departments of Bioengineering[1], Cancer Biology[2], and Genetics[3]; Stanford University

"Optogenetic Deconstruction of Dynamic Retrieval Strategies for Long-term Memories"
Jenelle Wallace[1], Inbal Goshen[2], Matthew Brodsky, Rohit Prakash[3], Viviana Gradinaru[4], Charu Ramakrishnan[2], Karl Deisseroth[2,4]
Departments of Biology[1], Bioengineering[2], Neuroscience[3], and Psychiatry & Behavioral Sciences[4]; Stanford University

"Huntingtin Protein Remodeling by the Eukaryotic Chaperonin TRiC/CCT"
Jake Wang, Koning Shen, Lukasz Joachimiak, Judith Frydman
Department of Biology, Stanford University

"Engineering Viruses with Riboregulators to Selectively Lyse Cells"
Christopher Weyant[1], Josh Michener[2], Christina Smolke[2]
Departments of Chemical Engineering[1] and Bioengineering[2], Stanford University

"Molecular Imaging of Autologous Canine Induced Pluripotent Stem Cell Transplantation"
Sujin Park[1], Dan Xu[2], Andrew Lee[2], Jordan Plews[2], Patricia Nguyen[3], Jennifer Lyons[3], Mei Huang[2], Divya Nag[2], Shijun Hu[2], Leng Han[2], Zhumur Ghosh[2], Fangjun Jia[2], Junwei Liu[2], Benjamin Levi[4], Tyler Long[5], Dana Bangs[7], Cholawat Pacharinsak[5], Alan Yeung[3], Sam Gambhir[2], Michael Longaker[6], Joseph Wu[3]
Departments of Biology[1], Radiology[2], Cardiovascular Medicine[3], Plastic and Reconstructive Surgery[4], Comparative Medicine[5], Surgery[6], and Pathology[7]; Stanford University

"Visual Breast Map VBM : A Novel Paradigm for Visualizing Mammogram Lesions and Patient Data"
Dana Yeo[1], Jafi Lipson[2] Daniel Rubin[2]
Departments of Biomedical Computation[1] and Radiology[2], Stanford University

"Redefinition of the Leukemia Stem Cell Subpopulation Using Pathway Activity"
Julie Koenig[3], Ryan Corces-Zimmerman[1], Ravindra Majeti[2]
Departments of Cancer Biology[1] and Stem Cell Biology[2], Stanford University; undeclared major[3]

"Tails of Regeneration: Assessing the Role of sbno2b in Zebrafish Larval Tail Fin Regeneration"
Maya Talbott[1], Alex Payumo[2], Shawn Ouyang[2], James Chen[2]
Departments of Biology[1] and Chemical & Systems Biology[2], Stanford University

"Small RNA Expression in *A. burtoni* Oogenesis"
Catherine Lu[2], Rosa Alcazar[1], Shruti Tibrewala[1], Russ Fernald[1]
Department of Biology[1], Stanford University; undeclared major[2]

"Wnt-deficient Tissues Display Decreased Wound Healing"
Wilfred Manzano[1], Jemima Whyte[2], Allison Coleman[3], Edward Wang, Jill Helms[3]
Departments of Biology[1], Surgery[2], and Plastic and Reconstructive Surgery[3]; Stanford University

"Sharing of *Streptococcus Mutans* Isolates Between Humans and Their Pet Dogs"
Scott Livingston[2], Muh-Ching Yee[3], Adam Boyko[1], Omar Cornejo[3], Carlos Bustamante[3]
School of Medicine[1] and Departments of Human Biology[2] and Genetics[3]; Stanford University

"Global Ancestry Interference Using Multi-Perspective Principal Components"
Nicelio Sanchez-Luege[1], Sivan Bercovici[2], Serafim Batzoglou[2]
Departments of Biomedical Informatics[1] and Computer Science[2], Stanford University

Bio-X Undergraduate Research Program

2010 Poster Titles

"The Diuretic Effect of a Small Molecure Inhibitor of CLC-K1 in Rats"
Huy Phan[2], Paru Kathpalia[1], Andrew Howery[3], Justin Du Bois[4], Lise Bakir
School of Medicine[1] and Departments of Biology[2], Public Policy[3], and Chemistry[4]; Stanford University

"Amygdalar and Hippocampal Volumes of Children and Adolescents at High Risk for Bipolar Disorder"
Erica Sanders[1], R. Kelly, Laya Bararpour[2], A. Garrett, M. Howe, K. Chang, Allan Reiss[3,4]
Departments of Psychology[1], Bioengineering[2], Psychiatry & Behavioral Sciences[3], and Radiology[4]; Stanford University

"Exploration of ERDA1, SEF2-1B, and MAB21L Trinucleotide Repeat Expansion Influence on Anticipation in Pediatric Bipolar Disorder"
Cheri Dijamco[1], Meghan Howe[2], Kiki Chang[2], Joachim Hallmayer[2]
Departments of Human Biology[1] and Psychiatry & Behavioral Sciences[2], Stanford University

"Mesenchymal Stem Cell Fate in a Biomimetic Collagen Hydrogel: A Regenerative Matrix for Enhanced Cutaneous Wound Healing"
Sarah Cheng[1], Kristine Rustad[2], Victor Wong, Michael Sorkin[4], Jason Glotzbach[4], Dean Nehama[3], Melanie Major[5], Jayakumar Rajadas, Michael Longaker[4], Geoffrey Gurtner[4]
Departments of Biology[1], Medicine[2], Neurology[3], Surgery[4], and Chemical Engineering[5]; Stanford University

"Targeting of VEGF-Receptor for Imaging and Treatment of Embryonic Stem Cell Derived Tumor Formation"
Wendy Zhang[1], Andrew Lee, Kevin Guo[2], Edwin Chang[3], Jayakumar Rajadas, Shawn Chen, Zhen Cheng[3], Joseph Wu[4]
Departments of Human Biology[1], Math & Computational Science[2], Radiology[3], and Cardiovascular Medicine[4]; Stanford University

"3D Motional Analysis of Wrist Kinematics"
Jeremy Goodman[1], Julia Lee, Amy Ladd[2]
Departments of Human Biology[1] and Orthopaedic Surgery[2]; Stanford University

"Combinatorial 3D Matrices for Optimizing Stem Cell Niche Towards Osteogenesis"
Michelle Nii[1], Galym Imanbayez[2], Fan Yang[3]
Departments of Materials Science & Engineering[1], Economics[2], and Geological & Environmental Sciences[3]; Stanford University

"Using Markov State Models to Study the Folding of Protein Fragments"
Jeremy Lai, Vincent Voelz, Vijay Pande
Department of Chemistry, Stanford University

"What a Difference an Exon Makes: A Comparison of MIM Isoforms"
Shire Beach[1], Scott Atwood[2], Tony Oro[2]
Departments of Biology[1] and Dermatology[2], Stanford University

"Neocortical Circuit Activity in Layer 6 Neurons"
Claire Durkin[1], Shaul Hestrin[2]
Departments of Bioengineering[1] and Comparative Medicine[2], Stanford University

"Characterization of Imprinting Effects of Mouse Chromosome 11 Using Mosaic Analysis with Double Markers (MADM)"
Catherine Nguyen, Simon Hippenmeyer, Liqun Luo
Department of Biology, Stanford University

"Identifying Cancer Stem Cells in Human Malignant Gliomas Using the Colony Forming Antibody Cell Array (CFACA)"
Jonathan Noguchi[1], Vanita Natu[2], Stephen Skirboll[2]
Departments of Biology[1] and Neurosurgery[2], Stanford University

"Solid Phase Sub-Monomer Synthesis of Poly-N-Substituted Glycines (Peptoids) for Capillary Electrophoresis"
Nathan Barnett[1], Zachary Urdang[1], Rinki Kapoor[2], Annelise Barron[1]
Departments of Bioengineering[1] and Electrical Engineering[2], Stanford University

"The Role of Toll-Like Receptors in Neurogenesis and Neural Progenitor Cell Allotransplantation"
Jeesun Kim[1], Lori Phillips[2], Theo Palmer[3]
Departments of Bioengineering[1], Immunology[2], and Neurosurgery[3]; Stanford University

"Effect of GABA A Antagonist on Epileptic Brain Slice"
Yoon Seok Kim[1,2], Vytas Dargis-Robinson[3], Bruce MacIver[3]
Departments of Computer Science[1], Biology[2], and Anesthesia[3]; Stanford University

"A Potential Role for the Rab GTPase Activating Protein RUTBC1 in Regulation of Autophagy"
Carmel Schindelhaim[1,2], Ryan Nottingham[3], Peter Lee[4], Suzanne Pfeffer[3]
Departments of Chemistry[1], Biology[2], Biochemistry[3], and Medicine[4]; Stanford University

"Engineering a Stable Single-Chain Platelet Derived Growth Factor Variant Using Yeast Surface Display"
Andrew Chou[1], Mihalis Kariolis[2], Jennifer Cochran[2]
Departments of Biochemical Engineering[1] and Bioengineering[2], Stanford University

"A Platform for the Shearing of Cell Monolayers"
Fasika Asrat, Claire Anderson, Gerald Fuller
Department of Chemical Engineering, Stanford University

"Improving Electrophysiological Recordings: Using Morpholinos to Reduce Background Signal"
Kevin Tran[1], Merritt Maduke[2], Sierra Simpson[2]
Departments of Biology[1] and Molecular & Cellular Physiology[2], Stanford University

"Evolutionary and Imaging Approaches to Assaying the Fitness of Rod-Shaped and Round Bacteria"
Dominique Dabija, KC Huang
Department of Bioengineering, Stanford University

"Early Predication of Bronchopulmonary Dysplasia in Premature Infants by Integration of Physiological Markers"
Laney Kuenzel[1,2], Suchi Saria[1], Daphne Koller[1]
Departments of Computer Science[1] and Mathematics[2], Stanford University

"Measuring Telomere Length at the Single Cell Level in Normal and Malignant Colon Stem Cells"
Kamen Simeonov[2], Michael Rothenberg[3], Ysbrand Nusse[4], Piero Dalerba[1], Michael Clarke[3]
Institute for Stem Cell Biology[1] and Departments of Biology[2], Medicine[3], and Biochemistry[4]; Stanford University

"Characterizing Tail Regeneration and Wild Populations' Genetic Structure in the Short-Lived Fish *Nothobranchius furzeri*"
Elisa Zhang[1], Dario Valenzano[2], Anne Brunet[2]
Departments of Human Biology[1] and Genetics[2], Stanford University

"The Hedgehog Pathway: Discovering Smoothened Mutations that Confer Drug Resistance"
Louis Lu[6], Nicholas Conley[2], Tyler Hillman[3], Matthew Scott[1,4,5]
Departments of Biology[1], Radiology[2], Medicine[3], Genetics[4], and Bioengineering[5], Stanford University; undeclared major[6]

"Improving Visualization of Opsin-Transduced Neuronal Cell Bodies with a 2A Self-Cleaving Peptide"
Minsuk Hyun[1,2], Joanna Mattis[3], Charu Ramakrishnan[3], Karl Deisseroth[3,4]
Departments of Biology[1], Mathematics[2], Bioengineering[3], and Psychiatry & Behavioral Sciences[4]; Stanford University

"Developing a New Method for Protein Labeling Using Fluorescent Derivatives of the Firefly Luciferin Precursor 2-Cyanobenzothiazole"
Linyi Gao[1], Ke Zhan[2], Jianghong Rao[2]
Departments of Chemistry[1] and Radiology[2], Stanford University

"Peptide-Modified Alginate as Tissue-Engineered Cartilage Scaffolds"
Tru-Khang Dinh, Marc Levenston
Department of Biomechanical Engineering, Stanford University

"Generation and Testing of a Myb Regulatory Network in Drosophilia Spermatogenesis"
Robert Schiemann[1,2], Heather Stalker[3], Joseph Lipsick[4]
Departments of Biology[1], Computer Science[2], Genetics[3], and Pathology[4]; Stanford University

"Detection of Reaction Intermediates Using Desorption Electrospray Ionization (DESI) Mass Spectrometry"
Nick Davis[2], Richard Perry[3], Maurizio Splendore[1], Allis Chien[1], Richard Zare[3]
Mass Spectrometry Center[1] and Departments of Bioengineering[2] and Chemistry[3]; Stanford University

"Pharmacology of Liposomal Wnt3a"
Mark Fang[1,2], Nicholas Evans, Steven Lee, Samuel Bockenhauer[3], Jill Helms[4]
Departments of Biology[1], Mathematical & Computational Sciences[2], Physics[3], and Surgery[4];
Stanford University

"Direct Conversion of Fibroblasts to Motor Neurons"
Daniel Fuentes[1], Thomas Vierbuchen[2], Troy Yang, Marius Wernig[3]
Departments of Biology[1], Cancer Biology[2], and Pathology[3]; Stanford University

"The Role of Adaptor Proteins, Tks4 and Tks5, in Podosome Formation: A Photoactivation Approach"
Ian Connolly[1], Sean Collins[2], Silvia Carrasco[2], Milos Galic[2], Samuel Bandara[2], Tobias Meyer[2]
Departments of Biology[1] and Chemical & Systems Biology[2], Stanford University

"A Virtual, 3-D Time-lapse Model of Human Skull Development Utilizing High Resolution Digital Imaging"
Tania Tran[1], Sarah Hegmann[3], Robert Cheng[3], W. Paul Brown[2]
Departments of Human Biology[1] and Surgery[2], and School of Medicine[3], Stanford University

Bio-X Undergraduate Research Program

2009 Poster Titles

"Thalamocortical Oscillations in the 4th Dimension: Calcium Imaging of an Epileptic Network"
Max Kleiman-Weiner[1], Mark P. Beenhakker[2], John R. Huguenard[2]
Departments of Biological Sciences[1] and Neurology[2], Stanford University

"Matrix Rigidity Regulates Skeletal Muscle Stem Cell Self Renewal in Culture"
Penney M. Gilbert[1], Karen Havenstrite[2], Alessandra Sacco[1], Nora Leonardi[1], Nghi Nguyen[3], Peggy Kraft[1], Matthias P Lutolf[1], Helen M. Blau[1]
Departments of Microbiology & Immunology[1], Chemical Engineering[2], Molecular & Cellular Biology[3]; Stanford University

"Analyzing the Efficacy of Protein-Engineered Vaccines Against B-Cell Lymphoma"
Alejandro Virrueta[1], Patrick Ng[2]
Department of Biomedical Engineering[1] and School of Medicine[2]; Stanford University

"Intraarterial Transplantation Results in Superior Delivery of Neural Stem Cells to the Ischemic Brain in Contrast to Intravenous Infusion"
Arjun V Pendharkar[2], Xavier Gaeta[3], Josh Y Chua[4], Nancy Wang[1], Hui Wang[5], Abhijit De[6], Raymond Choi[1], Robert H. Andres[4], Shawn Chen[6], Brian Rutt[6], Sanjiv S Gambhir[6], Raphael Guzman[4]
School of Medicine[1] and Departments of Neurology[2], Biological Sciences[3], Neurosurgery[4], Pediatrics[5], and Radiology[6]; Stanford University

"Single Cell Genomics: Shining Light on Microbial 'Dark Matter'"
Geoff Schiebinger[1], Paul Blainey[2], Stephen Quake[3]
Departments of Physics[1], Bioengineering[2], and Applied Physics[3]; Stanford University

"Characterizing the Rwandan HIV Epidemic in 1990-1993 Through Sequencing Analysis of Archived Plasma Specimens and Insights on Mother-to-Child Transmission"
Philip Bulterys[1], Sudeb Dalai[2], Betsy Johnston[2], David Katzenstein[2], Dmitri Petrov[1]
Department of Biology[1] and School of Medicine[2]; Stanford University

"Characterization of the Role of the Heparosulfate Proteoglycans Dally-like and Syndecan in Drosophila Germline Stem Cells"
Maryam Zamanian[2], Shrividhya Srinivasan[1], Margaret T. Fuller[1]
Department of Developmental Biology[1], Stanford University; undeclared major[2]

"Identification of Endogenous Substrates of the Group II Chaperonin Mm-cpn from the Archae-al Methanogen *Methanococcus maripaludis* using Computational and Biochemical Approaches"
Anthony Tuan Nguyen[1], Lukasz Joachimiak[1], Jeremy Dodsworth[2], Murray Hackett[3] and Judith Frydman[1]
Department of Biology[1], Stanford University; School of Life Sciences[2], University of Nevada; Department of Chemical Engineering[3], University of Washington

"Toward Holistic Diagnostic Models: Time Series Modeling of Neonate Laboratory Tests"
Andrew Duchi[2], Suchi Saria[1], Daphne Koller[1], Anna Penn[3]
Departments of Computer Science[1] and Pediatrics[3], Stanford University; undeclared major[2]

"Determining the roles of Aromatic and Hydrophobic Residues of an Interacting Amphipathic *Caenorhabditis elegans* MEC-6 Helix via Electrophysiological Expression in *Xenopus laevis* Oocytes"
Don Vongviphut[1], Amy L. Eastwood[2], Valeria Vásquez[2], Miriam B. Goodman[2]
Departments of Biology[1] and Molecular & Cellular Physiology[2], Stanford University

"Development of a Recombinase-Driven Mammalian DNA Oscillator"
Kim Tran[1], Wes Overton[2], Cliff Wang[2]
Departments of Materials Science & Engineering[1] and Chemical Engineering[2], Stanford University

"Intradermal Scaffold Implantation Model For Improved Acellular Dermal Matrix Incorporation"
Melanie Major[1], Michael Galvez[2], Victor Wong[2], Geoffrey C. Gurtner[2]
Departments of Chemical Engineering[1] and Surgery[2], Stanford University

"Characterization of Skin Wound Healing in Axin2LacZ/+ Reporter Mice"
Dani Zhao[1], Nick Evans[2], Zachary Stein[4], Alan Chen, Jill Helms[3]
School of Medicine[2] and Departments of Chemical Engineering[1] and Surgery[3], Stanford University; Department of Psychology[4], Hamilton College

"The Association of Polymorphims in Circadian Genes CLOCK and PERIOD3 and Risk for Developing Pediatric Bipolar Disorder"
Arpine Davtyan[1], Joachim Hallmayer[2]
Departments of Biology[1] and Psychiatry & Behavioral Sciences[2], Stanford University

"The Taming of the Ion"
Simon H. Ye, Griffin K. Barbula, Matthew D. Robbins, Richard N. Zare
Department of Chemistry, Stanford University

"Synthesis and Evaluation of Matriptase-Selective Activity-Based Probes"
Thinh Nguyen Duc[1,2], Margot Paulick[3], and Matthew Bogyo[3,4]
Departments of Biological Science[1], Chemistry[2], Pathology[3], and Microbiology & Immunology[4]; Stanford University

"Protein Interactions with MHC Class I at the Mouse CNS Synapse"
Xuchen Zhang[1], Barbara K. Brott[1], Carla Shatz[2]
Departments of Biology[1] and Neurosciences[2], Stanford University

"Toward High-throughput Analysis of Processive Stepping by Engineered Myosin Motors"
Sanjay Saraf[1], Tony D. Schindler[2], Zev Bryant[2]
Departments of Mechanical Engineering[1] and Bioengineering[2], Stanford University

"BMP Induced Healing of Calvarial Defects in the Athymic Nude Mouse Model"
Ankur Gupta[1], Nicholas Panetta[2], Deepak Gupta[2], Michael Longaker[2]
Departments of Biological Sciences[1] and Surgery[2], Stanford University

"Quantification of Abdominal Aortic Aneurysms During Disease Progression Using Small Animal Magnetic Resonance Imaging"
Kyla N. Barr[1], Craig J. Goergen[2,4], Maj Hedehus[4], Junya Azuma[3], Charles Taylor[2], Philip S. Tsao[3], Joan M. Greve[4]
Departments of Mechanical Engineering[1], Bioengineering[2], and Cardiovascular Medicine[3], Stanford University; Biomedical Imaging, Genentech, Inc.[4]

"Identifying the Role of Land Use in Coastal Water Quality in Northern California"
Debbie Lee[1], Sarah P. Walters[2], Alexandria B. Boehm[2]
Departments of Human Biology[1] and Civil & Environmental Engineering[2], Stanford University

"An ErbB Ligand Inhibits Hippocampal Neural Progenitor Cell Differentiation"
Rafael Wabl[1], Harish Babu[2], Theo Palmer[2]
Departments of Biology[1] and Neurosurgery[2], Stanford University

"Improving the Efficiency of Cell Transplantation through Biomaterials Development"
Brian Aguado[1], Sarah C. Heilshorn[2]
Departments of Biomechanical Engineering[1] and Materials Science & Engineering[2], Stanford University

"Creating a Lentivirus Expressing USP16, a Possible Negative Player in Self-Renewal"
Jonathan Noguchi[1], Maddalena Adorno[2], Michael F. Clarke[3]
Department of Biology[1], Institute for Stem Cell Biology and Regenerative Medicine[2], and School of Medicine, Oncology Division[3]; Stanford University