# Stanford Bio-X Interdisciplinary Initiatives
# Seed Grants Symposium
# Poster Session
August 24, 2016

| POSTER # | TITLE | AUTHORS |
|---|---|---|
| 1 | Investigating Possible Super Enhancer Sequences for Cardiac Development | Gunes Ates Akgun[1], Jaecheol Lee[2], Ningyi Shao[2], Joseph Wu[2,3], Zhen Cheng[3]<br>Departments of Biology[1], Cardiology[2], and Radiology[3], Stanford University |
| 2 | Visualizing the Role of Cell Cycle in Epithelial Differentiation | Daniel Alber[1], Samantha Piekos[1], Sandra Melo[1], Jessica Torkelson[1], Lingjie Li[1], Gautam Shankar[1], Anthony Oro[1]<br>Department of Dermatology[1], Stanford University |
| 3 | Bounds on the Number of Loci Required for All Splits of a Species Tree to Appear in a Set of Gene Trees | Alan J. Aw[1], Rohan S. Mehta[2], Lawrence H. Uricchio[2], David Bryant[3], Noah A. Rosenberg[2]<br>Departments of Mathematical & Computational Science[1] and Biology[2], Stanford University;<br>Department of Mathematics & Statistics[3], University of Otago, New Zealand |
| 4 | Inferring Orientation Tuning from fMRI Data with the Forward Encoding Model Suffers from Biased Estimation | Dylan Cable[1], Taosheng Liu[2], Justin L. Gardner[1]<br>Department of Psychology[1], Stanford University;<br>Department of Psychology[2], Michigan State University |
| 5 | Fluorescent Biosensors for Sugar Transport | Taylor M. Chavez[1], Lily S. Cheung[2], Wolf B. Frommer[1,2]<br>Department of Biology[1], Stanford University;<br>Department of Plant Biology[2], Carnegie Institution for Science |
| 6 | Regulation of TRPV1 and TRPV4 Membrane Trafficking | Annabel Chen[1], Carl Hurt[1], Eric Gross[1]<br>Department of Anesthesia[1], Stanford University |
| 7 | Effects of Kainic Acid and NSPC-Derived VEGF on Immature Neuron Activation | Kelly Chen[1], Elizabeth Kirby[1], Tony Wyss-Coray[1]<br>Department of Neurology[1], Stanford University |
| 8 | Mapping Connectivity and Function of the Neural Circuits Underlying Thirst | Michael Z. Chen[1], William E. Allen[2], Liqun Luo[3], Karl Deisseroth[1,4]<br>Departments of Bioengineering[1], Biology[3], and Psychiatry & Behavioral Sciences[4] and Neurosciences Interdepartmental Program[2], Stanford University |
| 9 | The Role of SPARC and Its Binding Partners in Diffuse Intrinsic Pontine Glioma Invasion to the SVZ | Dominique Cooper[3], Elizabeth Qin[1,2], Michelle Monje[2]<br>Departments of Neuroscience[1], Neurology[2], and Biology[3], Stanford University |
| 10 | Synergistic Effects of Maternal Immune Activation and cMet Deletion on Embryonic Neuronal Subtype Distribution | Kristina Correa[1,2], Alex Lopez[1,2], Aditi Narayan[1,2], Brooke Babineau[1,2], Theo Palmer[1,2]<br>Department of Neurosurgery[1] and Institute for Stem Cell Biology & Regenerative Medicine[2], Stanford University |
| 11 | Predicting Remote Pain and Opioid Use Cessation Using Early Trajectory Clustering | Eric Cramer[1], Sean Mackey[1], Ian Carroll[1], Jennifer Hah[1]<br>Department of Anesthesiology (Division of Pain Management)[1], Stanford University |
| 12 | Designing Reporters for Repeat Associated Non-ATG (RAN) Translation in HEK 293T | Tai Dinger[1], Shizuka Yamada[1], Aaron Gitler[1]<br>Department of Genetics[1], Stanford University |

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| 13 | Biochemical Purification of Protein Complexes Associated with Mutant Nucleophosmin (NPM1) | Julia Eberhard[2], Marisa Juntilla[1,2], Caitlin Roake[2], Natalie Ortiz[2], Steven Artandi[2]<br>Departments of Pathology[1] and Hematology[2], Stanford University |
| 14 | *In Vivo* Characterization of Murine Inner Ear Hair Cell Progenitors | Juleh Eide[1], Patrick J. Atkinson[1], Alan G. Cheng[1]<br>Department of Otolaryngology – Head & Neck Surgery[1], Stanford University |
| 15 | Optimizing Single-Cell Activation in Epiretinal Prostheses to Restore Vision in People Blinded by Photoreceptor Diseases | Victoria H. Fan[1,2], Lauren E. Grosberg[1,2], E.J. Chichilnisky[1,2]<br>Department of Neurosurgery[1] and Hansen Experimental Physics Laboratory[2], Stanford University |
| 16 | Effects of Soil Chemistry on Plant Pathogen Communities | Johannah Farner[1], Erin R. Spear[1], Caroline Daws[1], Erin A. Mordecai[1]<br>Department of Biology[1], Stanford University |
| 17 | The Role of N17 in Huntingtin Pathogenesis | Alex Feldman[1], Koning Shen[1], Judith Frydman[1],<br>Department of Biology[1], Stanford University |
| 18 | Mechanistic Investigation of Inflammation Regulation by Novel Protein NLRC3-like | Scott L. Fleming[1], Ana Meireles Sousa[1], William S. Talbot[1]<br>Department of Developmental Biology[1], Stanford University |
| 19 | Sterol-Dependent Membrane Dynamics Regulate Influenza Virus Binding | Isabel Goronzy[1], Robert Rawle[2], Peter Kasson[2], Steven Boxer[1]<br>Department of Chemistry[1], Stanford University; Department of Molecular Physiology & Biological Physics[2], University of Virginia |
| 20 | Characterizing C/D Box Small Nucleolar RNA Interactions with GTPases in Keratinocyte Differentiation | Katie Gu[1], Eon Rios[1], Paul Khavari[1]<br>Department of Epithelial Biology[1], Stanford University |
| 21 | Identification of the Molecular Partners of Toll-6 and Toll-7 in the Developing Antennal Lobe | Ricardo Guajardo[1], Jiefu Li[1], Liqun Luo[1]<br>Department of Biology[1], Stanford University |
| 22 | Engineering Screening Approaches to Validate Cancer Driver Genes | Daniel Hart[1], Sean de la O[1], Antonia Dominguez[2], Ameen Salahudeen[1], Stanley Qi[2], Calvin Kuo[1]<br>Departments of Medicine (Division of Hematology)[1] and Bioengineering[2], Stanford University |
| 23 | Utilizing Haptic Interfaces to Understand Motor Control | Valerie Hau[1], Alok Subbarao[3], Jananan Mithrakumar[2], Samir Menon[1], Oussama Khatib[1]<br>Departments of Computer Science[1] and Electrical Engineering[2], Stanford University; Department of Biomedical Engineering[3], San Jose State University |
| 24 | Steps Toward Huntington's Disease Therapeutics: ProBDNF Treatment and the Microfluidic Co-Culture System | Nicolas Herrera[1], Wei Wang[1], Yanmin Yang[1]<br>Department of Neurology & Neurological Sciences[1], Stanford University |
| 25 | Myb-RFP Expression and Regulation of a Polo-GFP Transgene in Larval Wing Disc Development of *Drosophila* | Kathleen Howell[1,2], Joseph Lipsick[1,2]<br>Departments of Pathology[1] and Genetics[2], Stanford University |
| 26 | Replacing Blood Culture: Combined Broad-Range Microbial ID and AST Directly from Whole Blood | Annie Hu[1], Nadya Andini[1], Samuel Yang[1]<br>Department of Emergency Medicine[1], Stanford University |
| 27 | Variable Topography Antenna for Single-Element Beam-Steering | Karen Huynh[1], Chris Vassos[1], Yuji Tanabe[1], Ada Poon[1]<br>Department of Electrical Engineering[1], Stanford University |
| 28 | Characterization of Single-Guide RNAs in CRISPR/Cas9 Knockin Mice for Understanding Disease Phenotypes in Genome-Wide Association Studies | Anna Jaffe[1], Priya Rajasethupathy[1], Karl Deisseroth[1,2]<br>Departments of Bioengineering[1] and Psychiatry & Behavioral Sciences[2], Stanford University |

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| 29 | Behavioral Assessment of Frequency Discrimination in Mice | Zina Jawadi[1], Jinkyung Kim[1], Homer Abaya[1], John Oghalai[1]<br>Department of Otolaryngology – Head & Neck Surgery[1], Stanford University |
| 30 | Dynamic Functional Connectivity Using Resting-State fMRI in Children with Autism | Ariana Johnson[1], Shaozheng Qin[2], Tiawen Chen[2], Rachel Rehert[2], Vinod Menon[1,2,3,4]<br>Symbolic Systems Program[1], Departments of Psychiatry & Behavioral Sciences[2] and Neurology & Neurological Sciences[3], and Stanford Neurosciences Institute[4], Stanford University |
| 31 | Mimicking the Human Bone Marrow: Developing a 3D Co-Culture System to Increase Hematopoietic Stem Cell Proliferation | Sharon Kam[1], Minyoung Youn[2], Anupama Narla[2], Joy Y. Wu[3], Fan Yang[4], Kathleen M. Sakamoto[2]<br>Departments of Biology[1], Pediatrics[2], Endocrinology[3], and Bioengineering[4], Stanford University |
| 32 | Identifying Microbiome Signatures of Steroid-Refractory Graft-vs-Host Disease in HSCT Patients | Joyce Kang[1], Tessa Andermann[2], Jessica Ribado[1], Katia Tkachenko[1,3], Eli Moss[1], Ami Bhatt[1,3]<br>Departments of Genetics[1] and Medicine (Divisions of Infectious Diseases[2] and Hematology[3]), Stanford University |
| 33 | Hunting for New Therapeutic Approaches: Using CRISPR Systems to Treat Huntington's Chorea | Aris John Kare[1], Dehua Zhao[1], Lei Stanley Qi[1,2,3]<br>Departments of Bioengineering[1] and Chemical & Systems Biology[2] and ChEM-H[3], Stanford University |
| 34 | Selecting Otic Sensory Lineage Cells from Mouse ECS with the Fbxo2 Marker and Optimizing Conditions for Sensory Epithelia | Sawa Keymeuen[1], Byron Hartman[1], Stefan Heller[1]<br>Department of Otolarynology[1], Stanford University |
| 35 | Using Cell-Free RNA to Monitor BCR-ABL1 Mutations in Brain-Metastatic Leukemia | Lina Khoeur[1], Yingmei Li[1], Melanie Hayden-Gephart[1]<br>Department of Neurosurgery[1], Stanford University |
| 36 | Optogenetic Stimulation of iPSC-Derived Corticospinal Motor Neurons for Spinal Cord Injury | Joseph Kirollos[1], James Weiman[2], Giles Plant[2]<br>Departments of Biology[1] and Neurosurgery[2], Stanford University |
| 37 | Development of Cellular Models to Assess the Effects of Mutant Huntingtin Protein Aggregation on Global Proteome Stability | Nira Krasnow[1], Airlia Thompson[1], Ron Kopito[1]<br>Department of Biology[1], Stanford University |
| 38 | Lattice Systems of Vapor-Mediated Droplets | Anna Lai[1], Stefan Karpitschka[2], Manu Prakash[2]<br>Departments of Mechanical Engineering[1] and Bioengineering[2], Stanford University |
| 39 | Developing a Novel Bipolar Catheter Ablation System for Treating Ventricular Tachycardia | Andrew Lee[1], Meghedi Babakhanian[2], Paul J. Wang[1,2]<br>Departments of Bioengineering[1] and Cardiovascular Medicine[2], Stanford University |
| 40 | Development of a Pipeline for Determining Allele Specific Translation | Angela Li[1,2], Can Cenik[1], Jason Reuter[1], Maheetha Bharadwaj[1], Michael Snyder[1]<br>Department of Genetics[1] and Program in Biomedical Computation[2], Stanford University |
| 41 | Characterizing and Maintaining Immune Cell Populations within Tumor Organoid Cultures | Lillian Liao[1], James T. Neal[1], Iris Liu[1], Calvin Kuo[1]<br>Department of Medicine (Division of Hematology)[1], Stanford University |
| 42 | The Combinatorial Effect of Genetic Risk Factors and Maternal Immune Challenges on Embryonic Brain Development | Alexander Lopez[1], Kristina Correa[1], Aditi Narayan[1], Brooke Babineau[1], Theo Palmer[1]<br>Department of Neurosurgery[1], Stanford University |
| 43 | White Matter Correlates of Suicidal Ideation: A Diffusion Tensor Imaging Study | Daniel Lowet[1], Tiffany Ho[1], Sarah Ordaz[2], Ian Gotlib[1] |

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| | | Departments of Psychology[1] and Psychiatry & Behavioral Sciences[2], Stanford University |
| 44 | A Novel Bioluminescence Reporter-Based Sensor for Interrogating Drug-Induced Autophagy | Eric Marceau[1], Ian Chen[1], Joseph Wu[1]<br>Stanford Cardiovascular Institute[1], Stanford University |
| 45 | Electroresponsive Polypyrrole Nanoparticles for Controlled Drug Delivery | Aidan McCarty[1], Devleena Samanta[1], Niloufar Hosseini-Nassab[1], Richard N. Zare[1]<br>Department of Chemistry[1], Stanford University |
| 46 | Embryonic Brain Vascular Phenotypes of Endothelial-Specific Gpr124 KO Mice Versus Reck KO Mice | Thi Nguyen[1], Mario Vallon[1], Junlei Chang[1], Calvin Kuo[1]<br>Department of Medicine (Division of Hematology)[1], Stanford University |
| 47 | How to Get the Girl: Quantifying Courtship Behavior in Male Cichlids Using Automated Behavior Tracking | Luladay Price[1], Scott Juntti[1], Quentin Gaudry[2], Russ Fernald[1]<br>Department of Biology[1], Stanford University; Department of Biology[2], University of Maryland |
| 48 | Age- and Brain Region-Dependent Dysregulation of Oligodendrocyte Precursor Cell Population Dynamics in a Mouse Model of Neurofibromatosis Type I | Preethi Raghavan[1], James Lennon[2,3], Michelle Monje[2,3]<br>Departments of Bioengineering[1] and Neurology[3] and Institute for Stem Cell Biology & Regenerative Medicine[2], Stanford University |
| 49 | Mingling Microbes: Assessing Fungi-Bacteria Interactions in the Human Gut Microbiota | Christina Ren[1], Les Dethlefsen[1], Arati Patankar[1], Amy Lorber[1], David Relman[1]<br>Department of Microbiology & Immunology[1], Stanford University |
| 50 | Transcription Factors, COUP-TFII and Nkx2-3, Act in Concert to Modulate MAdCAM1 Expression | Walter Roper[1], Thanh Theresa Dihn[1], Nicole Salazar[1], Julian Pan[2], Milladur Rahman[1], Eugene C. Butcher[1,2]<br>Laboratory of Immunology & Vascular Biology (Department of Pathology)[1], Stanford University; Center for Molecular Biology & Medicine[2], VA Palo Alto Health Care System |
| 51 | Mechanistic Insights into a New Gli-Dependent Cancer Therapeutic | Zach Rosenthal[1], Alison Ondrus[1], Marisa Hom[1], James Chen[1,2,3]<br>Departments of Chemical & Systems Biology[1], Developmental Biology[2], and Chemistry[3], Stanford University |
| 52 | Man's Best Model: A Genomic Comparison of Ameloblastoma in Humans and Dogs | Persiana Saffari[1], Boaz Arzi[2], Robert West[1], Frank Verstraete[2], Jonathan Pollack[1]<br>Department of Pathology[1], Stanford University; Department of Surgical & Radiological Sciences[2], University of California, Davis School of Veterinary Medicine |
| 53 | Teaching a Computer to Recognize Faces: Impact of Convolutional Neural Network Architecture and Image Variations | Megha Srivastava[1], Kalanit Grill-Spector[1]<br>Department of Psychology[1], Stanford University |
| 54 | *In-situ* Two-Photon Imaging of the Gerbil Organ of Corti | Gabriela M. Steiner[1,2], Sunil Puria[1,2], Anthony J. Ricci[1,2]<br>Department of Otolaryngology – Head & Neck Surgery[1] and Otobiomechanics Research Group[2], Stanford University |
| 55 | Effects of Posture on Resting-State Functional Magnetic Resonance Imaging (rsfMRI) | Grace Tam[1,2], Hadi Hosseini[3], Allan Reiss[3,4]<br>Departments of Biology[1], Psychiatry & Behavioral Sciences[3], and Radiology[4] and Center for Interdisciplinary Brain Sciences Research[2], Stanford University |
| 56 | Hello Operator: Human Neuronal Population Activity During Mathematical Cognition | Sonia Targ[1], Yuqing Zhu[1], Amy Daitch[1], Pedro Pinheiro-Chagas[1], Josef Parvizi[1]<br>Department of Neurology & Neurological Sciences[1], Stanford University |

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| 57 | Using Non-Canonical Amino Acids to Probe Short Hydrogen Bonds in Photoactive Yellow Protein | Ben Thomson[1], Steven Boxer[1]<br>Department of Chemistry[1], Stanford University |
| 58 | Investigating Female Mate Choice in Malawi Cichlids | Paul Tran[1], Alina Nguyen[2], Allie Byrne[1], Ryan York[1], Russell Fernald[1]<br>Department of Biology[1], Stanford University; University of Notre Dame[2] |
| 59 | Systematic Identification of Synaptic Ligands that Bind Astrocytic Neurexin-1 | Rebecca Triplett[1], Justin Trotter[1], Zhang Bo[1], Shane Antony Liddelow[2], Alexandra Munch[2], Ben A. Barres[2], Tom Südhof[1]<br>Departments of Molecular & Cellular Physiology[1] and Neurobiology[2], Stanford University |
| 60 | Sleep and Learning in Mouse Model of Smith Magenis Syndrome | Mashbayar Tugsbayar[1], Bayarsaikhan Chuluun[1], H. Craig Heller[1]<br>Department of Biology[1], Stanford University |
| 61 | Optimizing Dosage of Small Animal Radiotherapy Using the PXi X-Rad SmART System | Aileen Wang[1], Stavros Melemenidis[1], Edward Graves[1]<br>Department of Radiation Oncology[1], Stanford University |
| 62 | *Toxoplasma gondii* MAF1b Binds the Host Cell MIB Complex to Mediate Mitochondrial Association | Felice D. Kelly[1], Brian M. Wei[1], Michelle L. Parker[2], Martin J. Boulanger[2], John C. Boothroyd[1]<br>Department of Microbiology & Immunology[1], Stanford University; Department of Biochemistry & Microbiology[2], University of Victoria |
| 63 | Neural Correlates of Suicidality in Depressed Adolescents | Eileen Williams[1], Natalie Colich[1], Ian Gotlib[1]<br>Department of Psychology[1], Stanford University |
| 64 | Dynamic Binding of Novel Transcription Factors NF45 and NF90 to PD-1 Promoter upon T Cell Activation | Timothy Ting-Hsuan Wu[1], LingFang Shi[2], Peter N. Kao[2]<br>Departments of Biology[1] and Medicine (Division of Pulmonary & Critical Care Medicine)[2], Stanford University |
| 65 | Profiling the Transcriptional Response to Activity in the *Drosophila* Brain | David Zimmerman[1], Thomas Clandinin[1]<br>Department of Neurobiology[1], Stanford University |
| 66 | Determining the Role of Transcription Factor AP2a in Non-Neural Ectoderm Cell Commitment | Jennifer Parker[1], Jillian Pattison[1], Jessica Torkelson[1], Lingjie Li[1], Sandra Carlos[1], Samantha Piekos[1], Hanson Zhen[1], Anthony Oro[1]<br>Department of Dermatology[1], Stanford University |
| 67 | Crystal Structure of the Inhibitory Channelrhodopsin | Yoon Seok Kim[1], Hideaki E. Kato[2], Andre Berndt[1], Soo Yeun Lee[1], Charu Ramakrishnan[1], Daniel Hilger[2], Brian Kobilka[2], Karl Deisseroth[1]<br>Departments of Bioengineering[1] and Molecular & Cellular Physiology[2], Stanford University |
| 68 | Not Just A Black Box: Interpretable Deep Learning for Genomics | Avanti Shrikumar[1], Peyton Greenside[2], Anshul Kundaje[1,3]<br>Departments of Computer Science[1], Biomedical Data Science[2], and Genetics[3], Stanford University |
| 69 | Co-Culture with Adipose-Derived Stem Cells and Chondrocytes Enhances Chondrogenesis in 3D Macroporous Microribbon Scaffolds | Heather Rogan[1], Francisco Ilagan[1], Fan Yang[1,2]<br>Departments of Bioengineering[1] and Orthopaedic Surgery[2], Stanford University |
| 70 | Design of Self-Assembling Bio-Inks for Cell-based 3D Printing | Karen Dubbin[1], Yuki Hori[1], Kazuomori Lewis[2], Sarah Heilshorn[1]<br>Departments of Materials Science & Engineering[1] and Chemical Engineering[2], Stanford University |
| 71 | ACC-dPAG Neurons Modulate Pain Behavior in Mice | Jasmine Dickinson[1], Gregory Corder[2], Chaudy Sotoudeh[2], Gregory Scherrer[2]<br>Departments of Biology[1] and Anesthesia[2], Stanford University |
| 72 | Extracellular Matrix-Based Microribbons with Varying Biochemical Cues as 3D Stem Cell Niches for Cartilage Repair | Courtney Gegg[1], Xinming Tong[2], Fan Yang[1,2] |

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| | | Departments of Bioengineering[1] and Orthopaedic Surgery[2], Stanford University |
| 73 | A Semi-Interpenetrating Network of Polyacrylamide and Recombinant Basement Membrane Allows Pluripotent Cell Culture in a Soft, Ligand-Rich Microenvironment | Andrew J. Price[1], Eva Yi-Hsuan Huang[2], Alexander R. Dunn[1,2]<br>Biophysics Program[1] and Department of Chemical Engineering[2], Stanford University |
| 74 | MOZART: High-Resolution Optical Molecular Imaging System for Medical and Biological Applications | Orly Liba[1,2,4,5]*, Elliott SoRelle[1,3,4]*, Debasish Sen[1,4], Adam de la Zerda[1,2,3,4,5]<br>(*equal contribution) Departments of Structural Biology[1] and Electrical Engineering[2], Biophysics Program[3], Molecular Imaging Program at Stanford (MIPS)[4], and Stanford Bio-X[5], Stanford University |
| 75 | Discovery of an Anti-malarial Inhibitor with a Novel Mechanism of Action Targeting Secondary Plastid Biogenesis | Katherine Amberg-Johnson[1,3], Katrina Hong[1], Ellen Yeh[1,2,3]<br>Departments of Biochemistry[1], Pathology[2], and Microbiology & Immunology[3], Stanford University |
| 76 | Characterizing the Role of Osmotic Swelling on the Transient Response and T2 Relaxation Times of Articular Cartilage and Meniscus Fibrocartilage | Eva G. Baylon[1], Akshay S. Chaudhari[2,3], Brian A. Hargreaves[3,4], Garry G. Gold[3], Marc E. Levenston[1,3]<br>Departments of Mechanical Engineering[1], Bioengineering[2], Radiology[3], and Electrical Engineering[4], Stanford University |
| 77 | Engineering a Novel Enzyme for Performing Site-Specific Protein Bioconjugation | Anne Ye[1], Shiven Kapur[1], Bob Chen[1], Jennifer Cochran[1]<br>Department of Bioengineering[1], Stanford University |
| 78 | Virtual Evaluation of Surgical Revascularization Techniques in Coronary Artery Bypass Surgery | Abhay B. Ramachandra[1,2,5], Christopher Jensen[3], Andrew B. Goldstone[3], Joseph Y. Woo[3], Jack H. Boyd[3], Andrew Kahn[4], Alison Marsden[2,5]<br>Departments of Mechanical & Aerospace Engineering[1] and Medicine[4], University of California, San Diego; Institute for Computational & Mathematical Engineering[5] and Departments of Pediatric Cardiology[2] and Cardiothoracic Surgery[3], Stanford University |
| 79 | Volumetric and Multi-View CNNs for Object Classification on 3D Data | Charles R. Qi[1], Hao Su[2], Matthias Nießner[2], Angela Dai[2], Mengyuan Yan[1], Leonidas J. Guibas[2]<br>Departments of Electrical Engineering[1] and Computer Science[2], Stanford University |
| 80 | Using Handheld Stereo Depth Cameras to Extend Medical Imaging for Radiation Therapy Planning | Cesare Jenkins[1,2], Shu-Jung Yu[1], Lei Xing[1]<br>Departments of Radiation Oncology[1] and Mechanical Engineering[2], Stanford University |
| 81 | Convergence of Non-Coding Variant Risk Across Multiple Cancer Types Reveals Novel Drivers of Tumorigenesis | Nasa Sinnott-Armstrong[1], Richard Sallari[2], Christina Curtis[1], Michael Snyder[1]<br>Department of Genetics[1], Stanford University; Massachusetts Institute of Technology[2] |
| 82 | Influence of Lysozyme and Mucin Deposition on Contact Lens Wearability | Noelle I. Rabiah[1], Gerald G. Fuller[1]<br>Department of Chemical Engineering[1], Stanford University |
| 83 | An 8 Minute Simultaneous Morphological and Quantitative Whole Knee Magnetic Resonance Imaging Protocol | Akshay S. Chaudhari[1,2], Bragi Sveinsson[1,3], Catherine J. Moran[1], Emily J. McWalter[4], Ethan M. Johnson[3], Tao Zhang[1,3], Garry E. Gold[1,2], Brian A. Hargreaves[1,2,3]<br>Departments of Radiology[1], Bioengineering[2], and Electrical Engineering[3], Stanford University; |

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| | | Department of Mechanical Engineering[4], University of Saskatchewan |
| 84 | Engineering Patterned Biofilms for Microbial Consortia | Xiaofan Jin[1], Ingmar Riedel-Kruse[1]<br>Department of Bioengineering[1], Stanford University |
| 85 | Homeostatic Control of Adult Organ Size through Apoptosis-Coupled Stem Cell Divisions | Jackson Liang[1], Shruthi Balachandra[1], Lucy Erin O'Brien[1]<br>Department of Molecular & Cellular Physiology[1], Stanford University |
| 86 | Selective Activation of Extracellular Transglutaminase 2 by Thioredoxin-1 | Brad A. Palanski[1], Nicholas M. Plugis[1], Chaitan Khosla[1,2]<br>Departments of Chemistry[1] and Chemical Engineering[2], Stanford University |
| 87 | Lossy Compression of Projection Data from Photon Counting Detectors | Picha Shunhavanich[1,2], Norbert J. Pelc[1,2]<br>Departments of Bioengineering[1] and Radiology[2], Stanford University |
| 88 | Hydroxyapatite Coated Microribbon-Based Hydrogels Induce Robust Osteogenesis and Mineralization of Mesenchymal Stem Cells in 3D | Bogdan Conrad[1], Xinming Tong[2], Fan Yang[2,3]<br>Departments of Stem Cell Biology & Regenerative Medicine[1], Orthopaedic Surgery[2], and Bioengineering3, Stanford University |
| 89 | *In Vivo* Characterization of the Radial and Tangential Diffusion Patterns in Human Cerebral Cortex | Qiyuan Tian[1,2], Christoph W.U. Leuze[2], Grant Yang[1,2], Jonathan Polimeni[3], Jennifer A. McNab[2]<br>Departments of Electrical Engineering[1] and Radiology[2], Stanford University; Department of Radiology[3], Massachusetts General Hospital |
| 90 | A Method to Measure Nanometer-Scale Interactions in Model Membranes: Atomic Recombination in NanoSIMS | Frank R. Moss III[1], Steven G. Boxer[1]<br>Department of Chemistry[1], Stanford University |
| 91 | Dynamic Genetic Control of Gene Expression and DNA Methylation in Human Aging | Trevor Martin[1], Hunter Fraser[1]<br>Department of Biology[1], Stanford University |
| 92 | The Mutational Spectrum of *Drosophila melanogaster* | Zoe June Assaf[1,2], Dmitri A. Petrov[2]<br>Departments of Genetics[1] and Biology[2], Stanford University |
| 93 | Glycolytic Regulation of Histone Acetylation Landscape of Muscle Stem Cells During Regeneration | Nora Yucel[1,2], Ermelinda Porpiglia[1,2], Thach Mai[1,2], Garry Nolan[1,2], Helen Blau[1,2]<br>Baxter Laboratories[1] and Department of Microbiology & Immunology[2], Stanford University |
| 94 | Cohesive and Adhesive Properties of Biofilm-Forming Bacteria | Emily Hollenbeck[1], Lynette Cegelski[2], Gerald G. Fuller[1]<br>Departments of Chemical Engineering[1] and Chemistry[2], Stanford University |
| 95 | Single-Molecule Tracking and Super-Resolution Imaging Reveal a Diffusion Trap at the Poles of *Caulobacter crescentus* | Alex von Diezmann[1], Thomas H. Mann[2], Keren Lasker[2], Lucy Shapiro[2], W. E. Moerner[1]<br>Departments of Chemistry[1] and Developmental Biology[2], Stanford University |
| 96 | Stochastically Varying Environments Promote Evolution of Modularity in Simulated Bacterial Metabolic Networks | Aaron Goodman[1]<br>Department of Biology[1], Stanford University |
| 97 | Regulation of Huntingtin Toxicity and Aggregation by Molecular Chaperones | Koning Shen[1], Ankit Baghel[1], Alex Feldman[1], Judith Frydman[1]<br>Department of Biology[1], Stanford University |
| 98 | Spinal Cord Circuits for Thermosensation and Thermal Nociception | Chen Ran[1], Gabriella Kamalani[1], Xiaoke Chen[1]<br>Department of Biology[1], Stanford University |
| 99 | Integrated, Multi-Cohort Analysis of Systemic Sclerosis Identifies Prognostic Transcriptional Signature | Shane Lofgren[1,2]*, Monique Hinchcliff[3]*, Mary Carns[3], Tammara Wood[4], Kathleen Aren[3], Esperanza Arroyo[3], Peggie Cheung[5], Alex Kuo[5], Antonia Valenzuela[5], Anna Haemel[6], Paul J. Wolters[7], Jessica Gordon[8], Robert Spiera[8], Shervin Assassi[9], Francesco Boin[10], Lorinda |

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| | | Chung[5,11,12], David Fiorentino[12], Paul J. Utz[1,5], Michael Whitfield[4], Purvesh Khatri[1,2]<br>(*equal contribution) Institute for Immunity, Transplantation, & Infection[1] and Departments of Medicine (Divisions of Biomedical Informatics Research[2] and Rheumatology[5]) and Dermatology[12], Stanford University; Department of Medicine (Division of Rheumatology)[3], Northwestern University Feinberg School of Medicine; Geisel School of Medicine[4], Dartmouth College; Departments of Dermatology[6], and Medicine (Pulmonary Division[7] and Division of Rheumatology[10]), University of California, San Francisco; Department of Rheumatology[8], Hospital for Special Surgery, New York; Division of Rheumatology & Clinical Immunogenetics[9], University of Texas Health Science Center at Houston; Department of Veterans Affairs[11], VA Palo Alto Health Care System |
| 100 | Direct Genomic Acquisition of CRISPR Spacers from RNA by a Natural Reverse-Transcriptase-Cas1 Fusion: Remembrance of RNA-Things Past | Sukrit Silas[1,2]*, Georg Mohr[3]*, David J. Sidote[3], Laura M. Markham[3], Antonio Sanchez-Amat[4], Devaki Bhaya[5], Alan M. Lambowitz[3], Andrew Z. Fire[1]<br>(*equal contribution) Departments of Pathology[1] and Chemical & Systems Biology[2], Stanford University; Department of Molecular Biosciences[3], Institute for Cellular & Molecular Biology, University of Texas at Austin; Department of Genetics & Microbiology[4], Universidad de Murcia, Spain; Department of Plant Biology[5], Carnegie Institution for Science |
| 101 | EEG Effects Produced by Nitrous Oxide and Remifentanil; BIS *vs* Chaos | Caitlin M. Drover[1], Hendrikus J. Lemmens[1], M. Bruce MacIver[1], David R. Drover[1]<br>Department of Anesthesiology, Perioperative & Pain Medicine[1], Stanford University |
| 102 | New Anesthetic Drug Discovery: Towards a More Selective 'Propofol' | Noëlie S.J. Cayla[1], Beza A. Dagne[1], Grace Ramey[1], Gabriella Bertaccini[1], James R. Trudell[1], M. Frances Davies[1], Boris D. Heifets[1], Yao Lu[1], Yun Wu[1], Eric R. Gross[1], M. Bruce MacIver[1], Edward J. Bertaccini[1]<br>Department of Anesthesiology, Perioperative & Pain Medicine[1], Stanford University |
| 103 | Generation of EEG Oscillations in Neocortical Brain Slices | Beza A. Dagne[1], Stephen W. Evans[1], Noëlie S.J. Cayla[1], Pravin Ravishanker[1], M. Bruce MacIver[1]<br>Department of Anesthesiology, Perioperative & Pain Medicine[1], Stanford University |
| 104 | Proving Biodegradation of Polystyrene and Polyethylene by Mealworms (Larvae of *Tenebrio molitor*) from Various Sources | Wei-Min Wu[1], Shanshan Yang[1], Anja M. Brandon[1], Zhiyue Wang[1], Hanqing Fan[1], James C.A. Flanagan[2], Jun Yang[3], Robert Waymouth[2], Craig S. Criddle[1]<br>Department of Civil & Environmental Engineering[1], and Chemistry[2], Stanford University; School of Chemistry & Environment[3], Beihang University, China |
| 105 | Precision Glycocalyx Editing for Cancer Immune Therapy | Han Xiao[1], Elliot C. Woods[1], Carolyn R. Bertozzi[1]<br>Department of Chemistry[1], Stanford University |

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| 106 | Intracellular Electrical Recording of Action Potentials Using Carbon Nanotube Electrodes | Gregory Pitner[1], Matthew Abramian[2], Sergio Leal[3], John Huguenard[2], Nicholas Melosh[4], H.-S. Philip Wong[1]<br>Departments of Electrical Engineering[1], Neurology & Neurological Sciences[2], and Materials Science & Engineering[4] and Neurofab Incubator[3], Stanford Neurosciences Institute, Stanford University |
| 107 | Cell-Penetrating, Guanidinium-Rich Oligophosphoesters: Effective and Versatile Molecular Transporters for Drug and Probe Delivery | Colin J. McKinlay[1], Robert M. Waymouth[1], Paul A. Wender[1,2]<br>Departments of Chemistry[1] and Chemical & Systems Biology[2], Stanford University |
| 108 | Synaptic Vesicles Contain Small Ribonucleic Ccids (sRNAs) Including Transfer RNA Fragments (trfRNA) and microRNAs (miRNA) | Huinan Li[1,2], Cheng Wu[1], Rodolfo Aramayo[1], Matthew S. Sachs[1], Mark L. Harlow[1]<br>Department of Biology[1], Texas A&M University; (present address) Department of Neurosurgery[2], Stanford University |
| 109 | Smaller than Small: Probing Living Cells with Wireless Sensors | Kokab Parizi[1], Xiaolin Hu[1], Mimi Yang[1], Demir Akin[2], Mike McConnell[3], Ada Poon[1], H.-S. Philip Wong[1]<br>Departments of Electrical Engineering[1] and Medicine (Division of Cardiovascular Medicine)[3] and Center for Cancer Nanotechnology Excellence[2], Stanford University |
| 110 | Visualization of Small Vessel Using Coherent Flow Power Doppler (CFPD) | You Leo Li[1], Dongwoon Hyun[1], Lotfi Abou-Elkacem[2], Juergen Karl Willmann[2], Jeremy J. Dahl[2]<br>Department of Biomedical Engineering[1], Duke University; Department of Radiology[2], Stanford University |
| 111 | Omental Macrophages: Drivers of Ovarian Cancer Colonization | Venkatesh Krishnan[1], Bruce Schaar[1], Supreeti Tallapragada[1], Oliver Dorigo[1]<br>Department of Obstetrics & Gynecology, (Division of Gynecologic Oncology)[1], Stanford University |
| 112 | Screening Approach to Identify a Selective NGly1 Inhibitor | Fred Tomlin[1], Christian Lentz[2], Matthew Bogyo[2], Carolyn Bertozzi[1]<br>Departments of Chemistry[1] and Pathology[2], Stanford University |
| 113 | In-Plane Shear Strain Induces Epithelial Reorganization | Miguel A. Garcia[1]*, Ehsan Sadeghipour[1,2]*, W. James Nelson[1,3], Beth L. Pruitt[2,3,4]<br>(*equal contribution) Departments of Biology[1], Mechanical Engineering[2], Molecular & Cellular Physiology[3], and Bioengineering[4], Stanford University |
| 114 | Probing the Individual, Temporal, and Environmental Dynamics of the Human Gut Proteome | Ellen Casavant[1], Les Dethlefson[2], Susan Holmes[3], David Relman[2], Josh Elias[1]<br>Departments of Chemical & Systems Biology[1], Microbiology & Immunology[2], and Statistics[3], Stanford University |
| 115 | Environmental DNA Metabarcoding to Identify Marine Vertebrates in Monterey Bay | Elizabeth A. Andruszkiewicz[1], Hilary A. Starks[2], Lauren M. Sassoubre[3], Barbara B. Block[4], Alexandria B. Boehm[1]<br>Department of Civil & Environmental Engineering[1] and Center for Ocean Solutions[2], Stanford University; Department of Civil, Structural, & Environmental Engineering[3], University at Buffalo, The State University of |

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| | | New York; Department of Biology[4], Hopkins Marine Station, Stanford University |
| 116 | Peripheral Blood Gene Expression Biomarkers of Risk and Progression in Type 1 Diabetes | Becca Fuhlbrigge[1]*, Linda Yip[1]*, C. Garrison Fathman[1]<br>(*equal contribution) Department of Medicine (Division of Immunology and Rheumatology)[1], Stanford University |
| 117 | Using IL-2 Vault Conjugates for Drug Delivery to Regulatory T Cells | Anant Hari[1], Juliana Herrera[1], Max Pass[1], Charles Garrison Fathman[1]<br>Department of Medicine (Division of Immunology & Rheumatology)[1], Stanford University |
| 118 | Novel Theranostic Nanoparticles for Molecular Imaging and Glioblastoma Therapy | Ketan Yerneni[1], Suchismita Mohanty[1], Olga Lenkov[1], Heike Daldrup-Link[1]<br>Department of Radiology, Molecular Imaging Program at Stanford (MIPS)[1], Stanford University |
| 119 | Conversion of Extracellular Signals to Programmable Genome Manipulation via CRISPRouter | P. C. Dave P. Dingal[1,2,3], Nathan H. Kipniss[1], Yuchen Gao[4], Lei S. Qi[1,2,3]<br>Departments of Bioengineering[1] and Chemical & Systems Biology[2], Stanford ChEM-H[3], and Cancer Biology Graduate Program[4], Stanford University |
| 120 | Application of GRIN Probes for *in vivo* Fluorescence Microscopy of Retinal Ganglion Cells | Alex Kreymerman[1], David Buickians[2], Howard Chen[2], Ya Gong[2], Emily Huynh[2], Jeffrey Goldberg[1]<br>Department of Ophthalmology[1], Stanford University; Department of Bioengineering[2]; University of California, San Diego |
| 121 | Cleaved Trop2 as Biomarker and Therapeutic Target for Prostate Cancer | En-Chi Hsu[1], Meghan A. Rice[1], Sharon Pitteri[1], Hongjuan Zhao[2], Rosalie Nolley[2], Donna Peehl[2], James D. Brooks[2], Tanya Stoyanova[1]<br>Departments of Radiology[1] and Urology[2], Stanford University |
| 122 | Defining Molecular Mechanisms Underlying Notch1 Activity in Metastatic Prostate Cancer | Meghan A. Rice[1], En-Chi Hsu[1], Tanya Stoyanova[1]<br>Department of Radiology[1], Stanford University |
| 123 | On Chip DNA Synthesis Using Plasmonically Activated Dielectrophoretic Trapping and Transport | Punnag Padhy[1], Mohammad Asif Zaman[1], Lambertus Hesselink[1]<br>Department of Electrical Engineering[1], Stanford University |
| 124 | Molecular and Functional Resemblance of Terminally Differentiated Cells Derived from Isogenic Human iPSCs and Somatic Cell Nuclear Transfer Derived ESCs | Ming-Tao Zhao[1,2,3], Haodong Chen[1,2,3], Qing Liu[4], Ning-Yi Shao[1,2,3], Nazish Sayed[1,2,3], Youngkyun Kim[1,2,3], Huaxiao Yang[1,2,3], Tony Chour[1,2,3], Hong Ma[5,6], Rebecca Tippner-Hedges[5,6], Shoukhrat Mitalipov[5,6], Michael P. Snyder[4]*, Joseph C. Wu[1,2,3]*<br>(*corresponding authors) Stanford Cardiovascular Institute[1], Departments of Medicine (Division of Cardiology)[2] and Genetics[4], and Institute of Stem Cell Biology & Regenerative Medicine[3], Stanford University; Center for Embryonic Cell & Gene Therapy[5], Oregon Health & Science University, Portland, Oregon; Division of Reproductive & Developmental Sciences[6], Oregon National Primate Research Center, Oregon Health & Science University |
| 125 | Anchovies to Whales: Tracking Vertebrate Biodiversity in Monterey Bay by Metabarcoding Environmental DNA (eDNA) | Collin J. Closek[1,2], Hilary A. Starks[1], Kristine R. Walz[3], Francisco P. Chavez[1,3], Alexandria A. Boehm[1,2] |

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| | | Center for Ocean Solutions[1] and Department of Civil & Environmental Engineering[2], Stanford University; Monterey Bay Aquarium Research Institute[3] |
| 126 | Contrasting Evolutionary and Ecological Signals in Bat-Viral Interactions | Hannah Frank[1], David Enard[1], Scott Boyd[2], Elizabeth Hadly[1,3,4]<br>Departments of Biology[1] and Pathology[2], Woods Institute for the Environment[3], and Center for Innovation in Global Health[4], Stanford University |
| 127 | Restoring Tactile Sensing with Electronic Skin | Celine Liong[1], Alex Chortos[2], Zhenan Bao[3]<br>Departments of Bioengineering[1], Materials Science & Engineering[2], and Chemical Engineering[3], Stanford University |
| 128 | Programmed Cell Fate Changes in Mammalian Cells Using CRISPR-Based Synthetic Transcription Factors | Marie La Russa[1,2], Marcos Torres[2,3], Yanxia Liu[2], Yuchen Gao[4], Stanley Qi[2,5]<br>Biomedical Sciences Program[1], University of California, San Francisco; Departments of Bioengineering[2] and Chemical & Systems Biology[5], Summer Undergraduate Research Fellows Program[3], and Cancer Biology Program[4], Stanford University |
| 129 | Eye Movement and Reading in Parkinson's Disease | Jennifer Li[1], M. Ali Shariati[2], Y. Joyce Liao[2]<br>Departments of Biology[1] and Ophthalmology[2], Stanford University |
| 130 | Algorithms for Identifying and Avoiding Axon-Bundle Activation in Epiretinal Prostheses | Karthik Ganesan[1], Nandita Bhaskhar[1], Lauren Grosberg[2,4], E.J. Chichilnisky[2,4], Subhasish Mitra[1,3]<br>Departments of Electrical Engineering[1], Neurosurgery[2], and Computer Science[3] and Hansen Experimental Physics Laboratory[4], Stanford University |
| 131 | Capsule Ultrasound (CUS) Device | Farah Memon[1], Gerard Touma[2], Junyi Wang[2], Spyridon Baltsavias[2], Morten Fischer Rasmussen[2], Chienliu Chang[2], Eric Olcott[3,4], R. Brooke Jeffrey[4], Amin Arbabian[2], Butrus (Pierre) T. Khuri-Yakub[2]<br>Departments of Bioengineering[1], Electrical Engineering[2], and Radiology[4], Stanford University; Department of Radiology[3], VA Palo Alto Health Care System |
| 132 | Morphometric Analysis of Cells on Various Substrate Materials and Stiffnesses | Hera Nalbandian[1], Alice Stanton[2], Beth Pruitt[1]<br>Departments of Mechanical Engineering[1] and Bioengineering[2], Stanford University |
| 133 | Induced Pluripotent Stem Cell-Derived Cardiomyocytes (iPS-CMs) Separation via Inertial Microfluidic Devices | Karina Luna[1], Mahdokht Masaeli[1], Alexandre Ribeiro[1], Beth L. Pruitt[1,2]<br>Departments of Mechanical Engineering[1] and Molecular & Cellular Physiology[2], Stanford University |
| 134 | Proteins and Polysaccharides: the Forms and Functions of the Bacterial Extracellular Matrix | Alex S. Antonopolis[1], Joseph A. H. Romaniuk[1], Wiriya Thongsomboon[1], Lynette Cegelski[1]<br>Department of Chemistry[1], Stanford University |
| 135 | Investigating the Propagation of the Mechanical Stimuli from a Micro-Cantilever to the Touch Receptor Neurons of *C. elegans* Using Fluorescence Imaging | Sheetal Ramsurrun[1], Adam Lee Nekimken[2], Miriam Goodman[3,4], Beth Pruitt[2]<br>Vice Provost for Undergraduate Education[1], Departments of Mechanical Engineering[2] and Molecular & Cellular Physiology[3], and Stanford Neurosciences Institute[4], Stanford University |
| 136 | Integrating Public Data Towards Ecological Insight: Magnesium Transport as a Key Trait in Plant-Fungal Symbiosis | Joe Wan[1], Kabir Peay[1]<br>Department of Biology[1], Stanford University |