



Stanford Bio-X Interdisciplinary Initiatives
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Poster Session
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1	Developmental Phosphoproteomics Identifies CK2 as a Novel Therapeutic Target in Medulloblastoma	Teresa Purzner ¹ , Steve Gygi ² , Josh Elias ³ , Matthew P. Scott ^{1,4} , Yoon-Jae Cho ^{5,6} Departments of Developmental Biology ¹ , Systems Biology ³ , Neurology ⁵ , and Neurosurgery ⁶ , Stanford University; Department of Cell Biology ² , Harvard University; Carnegie Institute of Science ⁴
2	Engineering Emergent Multicellular Behavior Through Synthetic Adhesion Programs	David Glass ¹ , Ingmar Riedel-Kruse ¹ Department of Bioengineering ¹ , Stanford University
3	Engineering Patterned Biofilms for Microbial Consortia	Xiaofan Jin ¹ , Ingmar Riedel-Kruse ¹ Department of Bioengineering ¹ , Stanford University
4	Targeted Delivery of siRNA using Knottin-Protein Conjugates for Glioblastoma	Sungwon Lim ¹ , Sandra M. DePorter ¹ , Camila Kofman ² , Jennifer R. Cochran ^{1,2} Departments of Bioengineering ¹ and Chemical Engineering ² , Stanford University
5	Frequency-Selective Control of Cortical and Subcortical Networks by Central Thalamus	Jia Liu ¹ , Hyun Joo Lee ¹ , Andrew Weitz ² , Zhongnan Fang ¹ , Peter Lin ¹ , ManKin Choy ¹ , Robert Fisher ¹ , Vadim Pinsky ³ , Alexander Tolpygo ³ , Partha Mitra ³ , Nicholas Schiff ⁴ , Jin Hyung Lee ^{1,2} Departments of Neurology & Neurological Sciences ¹ and Bioengineering ² , Stanford University; Cold Spring Harbor Laboratory ³ ; Department of Neurology ⁴ , Weill Cornell Medical College
6	Improved Phylogenetic Ordinations for Microbiome Data	Julia Fukuyama ¹ , Susan Holmes ¹ Department of Statistics ¹ , Stanford University
7	3D Nanoelectrodes for Electrophysiology: How Size Affects Seal Resistance	Allister McGuire ¹ , Francesca Santoro ¹ , Ziliang Carter Lin ² , Yi Cui ³ , Bianxiao Cui ¹ Departments of Chemistry ¹ , Applied Physics ² , and Materials Science & Engineering ³ , Stanford University
8	Deep Learning Models of the Retinal Response to Natural Scenes	Lane McIntosh ^{1*} , Niru Maheswaranathan ^{1*} , Aran Nayebi ² , Surya Ganguli ³ , Stephen A. Baccus ⁴ (*equal contribution) Neuroscience Program ¹ and Departments of Computer Science ² , Applied Physics ³ , and Neurobiology ⁴ , Stanford University
9	Enhancer-Promoter Contact Dynamics in Stem Cell Differentiation	Brook Barajas ¹ , Adam Rubin ¹ , Mayra Furlan-Magaril ² , Imani Howard ¹ , Daniel Kim ¹ , Max Mumbach ¹ , Howard Chang ¹ , Peter Fraser ² , Paul Khavari ¹ Department of Epithelial Biology ¹ , Stanford University; Program in Nuclear Dynamics ² , Babraham Institute
10	Learning Causal Disease Variants and Transcription Factor Binding Through Deep Learning Sequence-to-Chromatin Accessibility Models	Peyton Greenside ¹ , Avanti Shrikumar ² , Jason Buenrostro ³ , Ryan Corces ⁴ , Ravi Majeti ⁵ , Howard Chang ⁴ , Will Greenleaf ³ , Anshul Kundaje ^{2,3} Biomedical Informatics Training Program ¹ , Departments of Computer Science ² , Genetics ³ , and Medicine (Division of Hematology) ⁵ , and Center for Personal Dynamic Regulomes ⁴ , Stanford University

11	Elucidating the Mechanisms Underpinning the Promotion of Plant Iron Acquisition by Root Microbiota	Mathias J.E.E. Voges ^{1,2} , Yang Bai ³ , Ruben G. Oter ³ , Haruhiko Inoue ³ , Paul Schulze-Lefert ³ , Elizabeth S. Sattely ² Departments of Bioengineering ¹ and Chemical Engineering ² , Stanford University; Department of Plant Microbe Interactions ³ , Max Planck Institute for Plant Breeding Research, Germany
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		Craniofacial Research–National Institutes of Health
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		Biophysics Program ¹ and Department of Chemistry ³ , Stanford University; Department of Electrical & Systems Engineering ² , Washington University
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		Departments of Mechanical Engineering ¹ , Bioengineering ² , and Pediatrics ⁴ and Institute for Computational & Mathematical Engineering ³ , Stanford University Navdar Sever ^{1,2,3,4} , Randall K. Mann ^{1,2,3,4} , Libin Xu ⁵ , William J. Snell ⁶ , Carmen I. Hernandez-Lara ⁶ , Ned A. Porter ⁵ , Philip A. Beachy ^{1,2,3,4}
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89	Rapid Point-of-Card Detection of <i>Mycobacterium tuberculosis</i>	Yunfeng (Jerry) Cheng ^{1,2,3} , Jinghang Xie ^{1,2,3} , Jianghong Rao ^{1,2,3*} (*corresponding author) Molecular Imaging Program at Stanford (MIPS) ¹ and Departments of Radiology ² and Chemistry ³ , Stanford University
90	Absence of Bistability in Rb Hyperphosphorylation During Cell-Cycle Entry	Mingyu Chung ¹ , Chad Liu ¹ , Hee Won Yang ¹ , Ariel Jaimovich ¹ , Tobias Meyer ¹ Department of Chemical & Systems Biology ¹ , Stanford University
91	Ultra-high Field Magnetic Resonance Imaging of Magnetic Susceptibility in Cortical Lesions of Multiple Sclerosis	Wei Bian ¹ , Eric Tranvinh ¹ , May Han ² , Brian Rutt ¹ , Michael M. Zeineh ¹ Departments of Radiology ¹ and Neurology ² , Stanford University
92	SHG Microendoscopy Reveals Slowing of Motor Units with ALS in SOD1G93A Mice	Xuefeng Chen ¹ , Mark Schnitzer ^{2,3,4} , Scott Delp ^{1,5} Departments of Mechanical Engineering ¹ , Biology ² , Applied Physics ³ , and Bioengineering ⁵ and Howard Hughes Medical Institute ⁴ , Stanford University
93	Steerable Ablation Probes for Percutaneous Treatment of Tumors in the Liver	Joseph D. Greer ¹ , Troy K. Adebar ¹ , Gloria L. Hwang ¹ , Allison M. Okamura ¹ Departments of Mechanical Engineering ¹ and Radiology ² , Stanford University
94	Building a Multi-Well Format, Open-Source Oscillating Fluid Exchange System for Cell-Based Assays	Tsung-Yuan Wu ¹ , Stefan Tholen ² , Allison Okamura ¹ , Mary N. Teruel ² Departments of Mechanical Engineering ¹ and Chemical & Systems Biology ² , Stanford University

95	Human Induced Pluripotent Stem Cell-derived Cardiomyocytes Reveals Hypokalemia-Induced Exacerbation of Ventricular Arrhythmogenicity of Anti-Arrhythmic Drugs	<p>Praveen Shukla^{1,2,3}, Elena Matsa^{1,2,3}, Priyanka Garg^{1,2,3}, Wenyi Chen^{1,2,3}, Arun Sharma^{1,2,3}, Oscar J. Abilez^{1,2,3}, Joseph D. Gold^{1,5}, Joseph C. Wu^{1,2,3,*}</p> <p>(*corresponding author) Stanford Cardiovascular Institute¹, Institute for Stem Cell Biology & Regenerative Medicine², Departments of Medicine (Division of Cardiology)³, Chemistry⁴, and Cardiothoracic Surgery⁵, Stanford University</p> <p>Sanhong Yu^{1,2,3,4}, Krystle M. Leung^{1,2}, Hye-Young Kim^{1,2,5}, Yanping Xiao^{3,4}, Lee A. Albacker^{1,2,6}, Dale T. Umetsu^{1,2,7}, Gordon J. Freeman^{3,4}, Rosemarie DeKruyff^{1,2,8}</p> <p>Division of Immunology¹, Children's Hospital Boston; Departments of Pediatrics² and Medicine⁴, Harvard Medical School; Department of Medical Oncology³, Dana-Farber Cancer Institute, Boston; Department of Biomedical Sciences⁵, Seoul National University College of Medicine, Korea; (present address) Foundation Medicine, Inc.⁶, Cambridge, MA; (present address) Genentech, Inc.⁷, South San Francisco; (present address) Department of Medicine⁸, Stanford University</p>
96	Blockade of the Neogenin-RGMB-BMP Signaling Hub Inhibits Allergen-Induced Airway Hyperreactivity	<p>Alice Lay¹, Michael Wisser², Yu Lin³, Tarun Narayan², Michael Krieg⁴, Ashwin Atre², Miriam Goodman⁴, Jennifer Dionne²</p>
97	Strain-Sensitive Upconverting Nanoparticles for Imaging Forces in Biology	<p>Departments of Applied Physics¹, Materials Science & Engineering², Geological & Environmental Sciences³, and Molecular & Cellular Physiology⁴, Stanford University</p>
98	TET-Mediated Stable 5hmC Deposition, but Not TDG Function, Is Required for Chondrogenic Differentiation	<p>Fiorella Grandi¹, Sarah E. B. Taylor¹, Ye Henry Li², Piera Smeriglio¹, Wing H. Wong³, Nidhi Bhutani¹</p>
98	TET-Mediated Stable 5hmC Deposition, but Not TDG Function, Is Required for Chondrogenic Differentiation	<p>Departments of Orthopaedic Surgery¹, Structural Biology², and Statistics³, Stanford University</p>
99	Development of a Novel Platform for Derivation of Single Cell Adipocytes from Human Induced Pluripotent Stem Cells (hiPSCs)	<p>Mohammad Shahbazi¹, Philip Lee¹, Paige Cundiff², Fahim Abbasi¹, Sunita D'Souza², Ihor Lemischka², Thomas Quertermous¹, Joshua W. Knowles¹</p>
99	Development of a Novel Platform for Derivation of Single Cell Adipocytes from Human Induced Pluripotent Stem Cells (hiPSCs)	<p>Stanford Cardiovascular Institute¹, Stanford University; Department of Developmental & Regenerative Biology², Icahn School of Medicine at Mount Sinai, New York</p>
100	Capsule Endoscopic Ultrasound Device	<p>Farah Memon¹, Gerard Touma¹, Junyi Wang¹, Spyridon Baltasvias¹, Morten Rasmussen¹, Chienliu Chang¹, Eric W. Olcott¹, R. Brooke Jeffrey¹, Amin Arbajian¹, Butrus (Pierre) T. Khuri-Yakub¹</p>
100	Capsule Endoscopic Ultrasound Device	<p>Department of Electrical Engineering¹, Stanford University</p>
101	Enantioselective Photolysis of Chiral Molecules Using Resonant Dielectric Nanoparticles	<p>Chi-Sing Ho¹, Yang Zhao², Aitzol Garcia³, Jennifer Dionne²</p>
101	Enantioselective Photolysis of Chiral Molecules Using Resonant Dielectric Nanoparticles	<p>Departments of Applied Physics¹ and Materials Science & Engineering², Stanford University; Donostia International Physics Center³, Donostia, Spain</p>
102	Microfluidic Worm Dispenser	<p>Florian Bienefelt^{1,4}, Frédéric Loizeau¹, Eileen Mazzochette², Sylvia Fechner³, Jürgen Brugger⁴, Miriam B. Goodman^{1,3}, Beth L. Pruitt^{1,3}</p>
102	Microfluidic Worm Dispenser	<p>Departments of Mechanical Engineering¹, Electrical Engineering², and Molecular & Cellular Physiology³, Stanford University; École</p>

		Polytechnique Fédérale de Lausanne ⁴ , Switzerland
103	A Stretchable Live Cell Platform to Probe Gut Mechanobiology	Joan Teixidor ^{1,4} , Jens Moeller ³ , Bryon Foys ² , Chase Wood ² , Lucy Erin O'Brien ² , Beth Pruitt ^{1,2} Departments of Mechanical Engineering ¹ , and Molecular & Cellular Physiology ² , Stanford University; Department of Health Science & Technology ³ , ETH Zürich; Department of Microengineering ⁴ , École Polytechnique Fédérale de Lausanne ⁴ , Switzerland
104	Transcription Factor Dynamics Identify a Circadian Code for Fat Cell Differentiation	Zahra Bahrami-Nejad ^{1*} , Michael L. Zhao ^{1*} , Sabine van Schie ¹ , Mingyu Chung ¹ , Mary N. Teruel ¹ (*equal contribution) Department of Chemical & Systems Biology ¹ , Stanford University
105	Social Status of Robots: Supporting Design of Human-Robot Relationships with Exploratory Assessment	Jamy Li ^{1,2} , Wendy Ju ¹ (collaborations with Rene Kizilcec ² , Jeremy Bailenson ² , Byron Reeves ²) Center for Design Research ¹ and Department of Communication ² , Stanford University
106	Gene Expression Meta Analysis to Create a Quantitative Measure of Field Change in Smoker Airway Epithelium: Towards More Precise Risk Estimates of Tobacco Attributable Disease	Evan Minty ^{1,2*} , Rohun Kshirsagar ^{3*} , Timothy Sweeney ^{2,3} , Francesco Vallania ³ , Winn Haynes ² , Hua Fan Minogue ³ , Kari Nadeau ³ , Purvesh Khatri ^{2,3} (*first authors) O'Brien Institute for Public Health ¹ , University of Calgary; Biomedical Informatics Training Program ² , Stanford University; Institute for Immunity, Transplantation, & Infection ³ , Stanford University