Kate E. Galloway

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EDUCATION AND EXPERIENCE

NIH Postdoctoral Research Fellow — Sep 2013 – Present
University of Southern California, Los Angeles, CA
PI: Justin Ichida

Adjunct Assistant Professor — Jan 2013 – May 2013
Harvey Mudd College, Claremont, CA
Department of Chemistry

Remote Research Scientist — Jun 2012 – Jan 2013
Stanford University, Stanford, CA
PI: Christina Smolke

PhD, Chemical Engineering, Minor in Biology — Jun 2007 – Jun 2012
California Institute of Technology, Pasadena, CA
Advisor: Christina Smolke

MS, Chemical Engineering — Sep 2005 – Jun 2007
California Institute of Technology, Pasadena, CA

BS, Chemical Engineering, Graduated with Honors — Aug 2001 – May 2005
University of California, Berkeley, Berkeley, CA

Research Assistant — Jun 2000 – Aug 2001
University of California, Riverside, Riverside, CA
PI: Wilfred Chen

PUBLICATIONS

1. Ichida, JK, Staats, KA, Davis-Dusenbery, BN, Clement, K, Galloway, KE, Babos, KN, Son, EY, Kiskinis, E, Atwater, N, Gu, H, Gnirke, A, Meissner, A, and Eggan, K. Comparative genomic analysis of embryonic, lineage-converted, and stem cell-derived motor neurons. *Development*. 2018: dev.168617.

2. Galloway, KE and Ichida, JK. Modeling neurodegenerative diseases and neurodevelopmental disorders with reprogrammed cells. *Stem Cells, Tissue Engineering and Regenerative Medicine. D.A. Warburton, Ed. (World Scientific, New Jersey, 2015).*

3. Franco, E and Galloway, KE. Feedback loops in biological networks. *Computational Methods in Synthetic Biology.* M. A. Marchisio, Ed. (Springer New York, 2015), vol. 1244, pp. 193-214.

4. Galloway, KE, Franco, E, and Smolke, CD. Dynamically reshaping signaling networks to program cell fate via genetic controllers. *Science*. 2013. 341:1235005.

Highlighted in "Concentrating (on) native proteins to control cell fate." Sarkar, Casim A. *Science* 341.6152 (2013)

5. Chen, YY*, Galloway, KE*, and Smolke, CD. Synthetic biology: advancing biological frontiers by building synthetic systems. *Genome Biology*. 2012. 13:240. *These authors contributed equally to this work.

6. Kostal, J, Mulchandani, A, Gropp, KE, and Chen, WA. Temperature Responsive Biopolymer for Mercury Remediation. *Environmental Science & Technology*. 2003. 37, 4457-4462.

In review

Babos, KN*, Galloway, KE*, Kisler, K, Zitting, M, Li, Y, Quintino, B, Chow, RH, Zlokovic, BV, and Ichida, JK. Balancing dynamic tradeoffs to drive reprogramming. (*In review*). *These authors contributed equally to this work. Available at bioRxiv: https://doi.org/10.1101/393934 **.**

FUNDING

Postdoctoral Fellowships

NIH Ruth L. Kirschstein NRSA Postdoctoral Fellowship — Fall 2015 – Fall 2018
National Institute of Neurological Disorders and Stroke (NINDS), Grant #: 5F32NS092417-03 — $171,018/3 years
Identifying the mechanisms of neuronal fate commitment during direct conversion

California Institute of Regenerative Medicine Postdoctoral Fellowship — Fall 2013 – Fall 2015
CIRM Training Grant, Grant #: TG2-01161 — $86,000/2 years

Grants

USC Provost Top-off Award — 2017
Internal award for NIH-funded postdocs — $5,000

Doerr USC Stem Cell Challenge Award with Hoaze Yu — 2017
Internal collaborative grant competition, Role: Co-PI — $10,000

Fluidigm USC Single Cell Project Grant — 2016
Corporate-sponsored grant competition, Role: PI — $9,000

HONORS & AWARDS

2nd Place Winner of Annual UCI Postdoctoral Symposium — Sep 2018
TED talk-style competition for open to all Southern California postdocs

Audrey E. Streedain Postdoctoral Travel Award — Jan 2018
Internal USC travel award

ARCS Maggie McKnight Russell Memorial Postdoctoral Fellow Award — Oct 2017-Present
Awarded by ARCS philanthropic society to one outstanding USC postdoctoral scholar, renewable

1st Place Winner of Annual USC Postdoctoral Symposium — May 2017
TED talk-style competition for all USC postdocs

Caltech Everhart Lecturer — May 2011
Lecture awarded yearly to three graduate students for excellence in research and communication

TEACHING EXPERIENCE

University of Southern California — Los Angeles, CA
Laboratory mentor — Sep 2013 – Present

Mentored 15 junior scientists (5 graduate, 8 undergraduate, 2 high school) through project design, fellowship proposals, laboratory training, data analysis, presentations, and manuscript preparation. Matriculated students have gone on to professional laboratories, dental school, and neuroscience programs.

Harvey Mudd College — Claremont, CA
Adjunct Assistant Professor — Jan 2013 – May 2013

Freshman Chemistry Lab: Prepared material for pre-lab lecture, supervised laboratory procedures, addressed issues in write-up and analysis of data, and graded lab books for Chemistry 24. Received 6 out of 7 (max score) for all categories in teaching evaluations.

California Institute of Technology — Pasadena, CA
Teaching Assistant — Jan 2008 – Dec 2008

Biomolecular Engineering Lab: Instructed students on laboratory techniques, guided design of course projects, and taught students how to troubleshoot their systems.

Biomolecular Design Course: Designed, graded homework and maintained the course web site.

TALKS

3rd Annual UCI Postdoctoral Symposium-Invited talk. Sep 2018
Slick software, slow hardware: Cellular reprogramming hits a wall.
University of California. Irvine, CA.

5th International Mammalian Synthetic Biology Workshop (mSBW 5.0) May 2018
Slick software, slow hardware: Balancing biophysical tradeoffs to drive cellular reprogramming.
Harvard Medical School. Boston, MA.

Society for Pure and Applied Systems and Synthetic Biology (SPASS-LA) Oct 2016
Accelerating cellular reprogramming through p53 inhibition enhances neuronal maturation, improves disease modeling
University of California at Los Angeles. Los Angeles, CA.

CIRM Tri-institutional Stem Cell Retreat May 2015
Destabilizing established transcriptional programs to enhance direct conversion.
California Institute of Regenerative Medicine. Santa Barbara, CA.

Department of Chemical Engineering Seminar-Invited talk Mar 2014
Dynamically reshaping signaling networks to program cell fate via genetic controllers
University of Southern California. Los Angeles, CA.

Department of Chemical Engineering Seminar-Invited talk Jan 2014
Dynamically reshaping signaling networks to program cell fate via genetic controllers.
Case Western Reserve University. Cleveland, OH.

Special Chemistry Department Seminar Dec 2013
So this engineer walks into a biology lab: Regulating cell fate with genetic control systems.
Harvey Mudd College. Claremont, CA.

Everhart Lecture-Invited talk May 2011
Flirty, Chaste, Promiscuous: What yeast can teach us about controlling cell fate.
California Institute of Technology. Pasadena, CA.

Engineering Principles in Biological Systems Seminar Dec 2008
Ligand-dependent regulation of transcriptional feedback and phenotype in a MAPK pathway via RNA control elements.
Cold Spring Harbor Laboratory. Cold Spring Harbor, NY.

Institute for Collaborative Biotechnologies Seminar-Invited talk May 2007
Development of RNA-based trans-control systems and their application to the regulation of signaling through the Saccharomyces cerevisiae pheromone-responsive MAPK pathway.
California Institute of Technology. Pasadena, CA.

POSTERS

Winter Quantitative Biology (qBio) Feb 2018
Balancing biophysical tradeoffs to drive cellular reprogramming
Maui, HI.

International Society for Stem Cell Research Conference (ISSCR) June 2017
Transcriptional capacity limits reprograming.
Boston, MA.

ALS Association-Golden West Chapter Meeting Jan 2017
Engineering the rainbow of motor neuron subtypes to improve *in vitro* disease modeling.
University of Southern California. Los Angeles, CA.

International Society for Stem Cell Research Conference (ISSCR) Jun 2016
Removing epigenetic and cytoskeletal roadblocks to reprogramming.
San Francisco, CA.

CIRM Tri-institutional Stem Cell Retreat Apr 2014
Identifying the molecular regulatory rules of long noncoding RNAs in neuronal fate commitment.
Asilomar, CA.

Synthetic Biology Conference (SB5.0) Jun 2011
Molecular network diverters as conditional routers of cell fate decisions.
Stanford University. Stanford, CA.

Systems Biology of Stem Cells Symposium May 2010
Control of cell fate in a model MAPK pathway via induced network topologies.
University of California at Irvine. Irvine, CA.

International Conference on Systems Biology (ICSB) Oct 2007
RNA-based control systems and their application to a model MAPK pathway.
Long Beach, CA.

COMMUNITY OUTREACH

I have moderated public debates, such as the Veritas Forum, on the Caltech campus and participated in college panels and outreach to local schools to foster awareness and interest in science and engineering. Additionally, I serve on the Keck School of Medicine Postdoctoral Advisory Committee and Co-chair the Academic Track Working Group (Details below).

Keck School of Medicine Postdoctoral Advisory Committee USC, Los Angeles, CA
Co-chair of Academic Track Working Group Jan 2018-Present
Recommend, organize, and plan events for postdoctoral scholars planning for careers in academia.

A Byte of Science: Lunch and learn Maranatha High School, Pasadena, CA
Speaker Jan 2018
Genetic engineering and cellular programming: Why you should go into biochemical engineering

The Veritas Forum California Institute of Technology, Pasadena, CA
Moderator Jan 2017
Meaning-Making Methodologies: A Christian mathematician and an atheist geoscientist share their views on what makes life worthwhile

College Prep Seminar Chinese Bible Missions Church, Alhambra, CA
Panelist Jul 2016
How to prepare for college and embrace the challenges and opportunities available at the university

The Veritas Forum California Institute of Technology, Pasadena, CA
Moderator Jan 2014
Meta(physics): An atheist and a Christian discuss physics and philosophy

Solar System Presentation Lake Avenue Church Preschool, Pasadena, CA
Speaker, craft facilitator Jan 2013, 2014, 2015
Our Awesome Milky Way Galaxy and Solar System

Chapel and Lunch Seminar Crean Lutheran South High School, Irvine, CA
Speaker Nov 2008
Why you should be a scientist!

REFERENCES

Justin K. Ichida
Postdoctoral Mentor
Assistant Professor of Stem Cell Biology and Regenerative Medicine
University of Southern California
Email: ichida@usc.edu
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Christina Smolke
Thesis Advisor
Professor of Bioengineering
Stanford University
Email: csmolke@stanford.edu
Phone: 650-721-6371

Elisa Franco
Collaborator
Associate Professor of Mechanical and Aerospace Engineering
University of California, Los Angeles
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Richard Murray
Professor of Control & Dynamical Systems and Bioengineering
California Institute of Technology
Email: murray@cds.caltech.edu
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