# Arjun Krishnan

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## Education

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|---|---|---|
| 2010 | **Ph. D. Genetics, Bioinformatics & Computational Biology**<br>Topic: *Systems Analysis of Stress Response in Plants* | **Virginia Tech**<br>Blacksburg, VA, USA |
| 2006 | **B. Tech. Industrial Biotechnology**<br>Centre for Biotechnology, AC College of Technology | **Anna University**<br>Chennai, India |

## Professional Appointments

| | | |
|---|---|---|
| 2017–Present | **Assistant Professor**<br>Dept. of Computational Math, Science, and Engineering<br>Dept. of Biochemistry and Molecular Biology | **Michigan State University**<br>East Lansing, MI, USA |
| 2013–2016 | **Associate Research Scholar**<br>Lewis-Sigler Institute for Integrative Genomics | **Princeton University**<br>Princeton, NJ, USA |
| 2011–2013 | **Postdoctoral Research Associate**<br>Lewis-Sigler Institute for Integrative Genomics | **Princeton University**<br>Princeton, NJ, USA |
| 2010–2011 | **Postdoctoral Research Associate**<br>Virginia Bioinformatics Institute | **Virginia Tech**<br>Blacksburg, VA, USA |
| 2006–2010 | **Graduate Research Assistant**<br>Virginia Bioinformatics Institute | **Virginia Tech**<br>Blacksburg, VA, USA |
| 2005–2006 | **Student Researcher**<br>Bioinformatics Centre | **Indian Institute of Science**<br>Bangalore, India |

## Publications

[♦ Co-primary authors listed alphabetically] [† Co-corresponding authors]

### Selected Peer-Reviewed Journal Articles

1. Liu R♦, Mancuso CA♦, Yannakopoulos A, Johnson KA, **Krishnan A** (2019) Supervised-learning is an accurate method for network-based gene classification. *bioRxiv* doi:10.1101/721423. Accepted in *Bioinformatics*. [Code + data: github.com/krishnanlab/GenePlexus]
2. Lee Y, **Krishnan A**, Oughtred R, Rust J, Chang CS, Ryu J, Kristensen VN, Dolinski K, Theesfeld CL, Troyanskaya OG (2018) A computational framework for genome-wide characterization of the human disease landscape. *Cell Systems*, 8:152-162. [Web-interface: ursahd.princeton.edu]
3. Iyer J, Singh MD, Jensen M, Patel P, Pizzo L, Huber E, Koerselman H, Weiner AT, Lepanto P, Vadodaria K, Kubina A, Wang Q, Talbert A, Yennawar S, Badano J, Manak R, Rolls MM, **Krishnan A**, Girirajan S (2018) Pervasive epistasis in cell proliferation pathways modulates neurodevelopmental defects of autism-associated 16p11.2 deletion. *Nature Communications*, 9:2548.
4. Wong AK, **Krishnan A**, Troyanskaya OG (2018) GIANT 2.0: Genome-scale Integrated Analysis of gene Networks in Tissues. *Nucleic Acids Research*, 46:W65–W70. [Wed-interface: giant-v2.princeton.edu]
5. **Krishnan A**, Gupta C, Ambavaram MMR, Pereira A (2017) RECoN: Rice Environment Coexpression Network for Systems Level Analysis of Abiotic-Stress Response. *Frontiers in Plant Science*, 8:1640. [Web-interface: plantstress-pereira.uark.edu/RECoN/]
6. **Krishnan A**†, Taroni JN, Greene CS†. (2016) Integrative networks illuminate biological factors underlying gene-disease associations. *Current Genetic Medicine Reports*, 4:155-162.
7. **Krishnan A♦**, Zhang R♦, Yao V, Theesfeld CL, Wong AK, Tadych A, Volfovsky N, Packer A, Lash A, Troyanskaya OG. (2016) Genome-wide prediction and functional characterization of the genetic basis of autism spectrum disorder. *Nature Neuroscience*, 19:1454-1462. [Web-interface: asd.princeton.edu]
8. Greene C♦, **Krishnan A♦**, Wong AK♦, Ricciotti E, Zelaya R, Himmelstein D, Zhang R, Hartmann BM, Zaslavsky E, Sealfon SC, Chasman D, FitzGerald G, Dolinski K, Grosser T, Troyanskaya OG. (2015) Understanding multi-cellular

function and disease with human tissue-specific gene interaction networks. *Nature Genetics*, 47:569-576. [Web-interface: giant.princeton.edu]

9. Zhu Q, Wong AK, **Krishnan A**, Aure MR, Tadych A, Zhang R, Corney DC, Greene CS, Bongo LA, Kristensen VN, Charikar M, Li K, Troyanskaya OG (2015) Targeted exploration and analysis of large cross-platform human transcriptomic compendia. *Nature Methods*, 12:211-214. [Web-interface: seek.princeton.edu]
10. Park C, **Krishnan A**, Zhu Q, Wong AK, Lee Y, Troyanskaya OG (2015). Tissue-aware data integration approach for the inference of pathway interactions in metazoan organisms. *Bioinformatics*, 31:1093-1101. [Web-interface: pathwaynet.princeton.edu]
11. Ambavaram MM, Basu S, **Krishnan A**, Venkategowda R, Batlang U, Rahman L, Baisakh N, Pereira A (2014). Coordinate regulation of photosynthetic carbon metabolism for yield and environmental stress response in rice. *Nature Communications*, 5:5302.
12. Lee Y, **Krishnan A**, Zhu Q, Troyanskaya OG (2013). Ontology-aware classification of tissue and cell-type signals in gene expression profiles across platforms and technologies. *Bioinformatics*, 29:3036-3044. [Web-interface: ursa.princeton.edu]
13. Ambavaram MM♦, **Krishnan A♦**, Trijatmiko KR, Pereira A (2011) Coordinated activation of cellulose and repression of lignin biosynthesis pathways in rice. *Plant Physiology*, 155:916-931.
14. Harb A, **Krishnan A**, Pereira A. (2010) Molecular and physiological analysis of drought stress in Arabidopsis reveals early responses leading to acclimation in plant growth. *Plant Physiology*, 154:1254-1271.
15. **Krishnan A**, Greco R, Pereira A (2009) Diversity of En/Spm transposons in maize and rice. *Maydica,* 53:181-187.
16. **Krishnan A**, Guiderdoni E, An G, Hsing YC, Han C, Lee MC, Yu SM, Upadhyaya N, Ramachandran S, Zhang Q, Sundaresan V, Hirochika H, Leung H, Pereira A. (2009) Mutant resources in rice for functional genomics of the grasses. *Plant Physiology,* 149:165-170.
17. **Krishnan A**, Greco R, Pereira A. (2008) Integrative approaches for mining transcriptional regulatory programs in Arabidopsis. *Briefings in Functional Genomics and Proteomics,* 7:264-274.

**Other Peer-Reviewed Journal Articles**

1. Pizzo L, Jensen M, Polyak A, Rosenfeld JA, Mannik K, **Krishnan A**, …, Girirajan S (2018) Rare variants in the genetic background modulate the expressivity of neurodevelopmental disorders. *Genetics in Medicine*, doi:10.1038/s41436-018-0266-3.
2. Rangan AV, McGrouther CC, Kelsoe J, Schork N, Stahl E, Zhu Q, **Krishnan A**, Yao V, Troyanskaya OG, Bilaloglu S, Raghavan P, Bergen S, Jureus A, Landen M (2018) A loop-counting method for covariate-corrected low-rank biclustering of gene-expression and genome-wide association study data. *PLoS Computational Biology*, 14: e1006105.
3. Wong AK, **Krishnan A**, Yao V, Tadych A, Troyanskaya OG. (2015) IMP 2.0: A multi-species functional genomics portal for integration, visualization and prediction of protein functions and networks. *Nucleic Acids Research*, 43:W128-133.
4. Goya J♦, Wong AK♦, Yao V♦, **Krishnan A**, Homilius M, Troyanskaya OG. (2015) FNTM: a server for predicting Functional Networks of Tissues in Mouse. *Nucleic Acids Research*, 43:W182-W187.
5. Chikina MD, Gerald CP, Li X, Ge Y, Pincas H, Nair VD, Wong AK, **Krishnan A**, Troyanskaya OG, Raymond D, Saunders-Pullman R, Bressman SB, Yue Z, Sealfon SC (2015) Low variance RNAs identify Parkinson's disease molecular signature in blood. *Movement Disorders*, 30:813-821.
6. Batlang U, Ambavaram MMR, **Krishnan A**, Pereira A (2014). Drought responsive genes and their functional terms identified by GS FLX Pyro sequencing in maize. *Maydica* 59: 306-314.
7. Venkategowda R, Basu S, **Krishnan A**, Pereira A (2014). Rice GROWTH UNDER DROUGHT KINASE is required for drought tolerance and grain yield under normal and drought stress conditions. *Plant Physiology*, 166:1634-1645.
8. Poirel CL, Rahman A, Rodrigues RR, **Krishnan A**, Addesa JR, Murali TM (2013) Reconciling differential gene expression data with molecular interaction networks. *Bioinformatics*, 29:622-629.
9. Xu X, Kumar N, **Krishnan A**, Kulkarni R (2013) Stochastic modeling of dwell-time distributions during transcriptional pausing and initiation. *52nd IEEE Conference on Decision and Control*, 4068-4073.

10. Kakumanu A, Ambavaram MM, Klumas C, **Krishnan A**, Batlang U, Myers E, Grene R, Pereira A (2012) Effects of drought on gene expression in maize reproductive and leaf meristem tissue revealed by RNA-Seq. *Plant Physiology*, 160:846-867.
11. Bassaganya-Riera J, Skoneczka J, Kingston DG, **Krishnan A**, Misyak S, Carter A, Pereira A, Guri AJ, Tumarkin R, Hontecillas R. (2009) Mechanisms of action and medicinal applications of abscisic acid. *Current Medicinal Chemistry,* 17:467-478.
12. Karaba A, Dixit S, Greco R, Aharoni A, Trijatmiko KR, Marsch-Martinez N, **Krishnan A**, Nataraja KN, Udayakumar M, Pereira A. (2007) Improvement of water use efficiency in rice by expression of HARDY, an Arabidopsis drought and salt tolerance gene. *Proceedings of the National Academy of Sciences USA*, 104:15270-15275.

**Other Preprints, Book Chapters**

1. Gupta C, **Krishnan A**, Collakova E, Wolinski P, Pereira A (2017) SANe: The Seed Active Network For Mining Transcriptional Regulatory Programs of Seed Development. *bioRxiv*, doi.org/10.1101/165894. [Web-interface: plantstress-pereira.uark.edu/SANe/]
2. Mohapatra SK♦, **Krishnan A♦**. (2009) Microarray data analysis. *Plant Reverse Genetics*. The Humana Press Inc., Totowa NJ, USA.
3. **Krishnan A**, Ambavaram MMR, Harb A, Batlang U, Wittich PE, Pereira A (2009) Genetic networks underlying plant abiotic stress responses. *Genes for Plant Abiotic Stress.* John Wiley & Sons, Inc., Ames IA, USA.

## FUNDING

*Active*

**R35 GM128765 Maximizing Investigators' Research Award NIH NIGMS** Krishnan (PI) 09/18 – 08/23
Resolving and understanding the genomic basis of heterogeneous complex traits and diseases
**Role**: PI; **Funding**: $1,750,550 (total)
The goal of this project is to develop a suite of computational frameworks that integrate massive collections of genomic and biomedical data to unravel disease subtypes, age/sex biases, and cross-species analogs of a wide range of complex disorders.

**BMB Team Research Award** Krishnan, He, Arnosti, Ralston (Multi-PI) 06/19 – 05/21
Gene regulation in single-cells
**Role**: PI (among multiple PIs); **Funding**: $109,000 (direct)
This pilot grant is to fund a computational postdoc to work on developing methods to analyze and integrate single-cell transcriptome and ATAC-Seq data in multiple model systems.

**NSF BIO IOS PGRP** Farre (PI) 05/20 – 04/24
MCA-PGR: Cycling below-ground: Circadian regulation in wild and domes-ticated potato
**Role**: Co-PI; **Funding**: $13,046 over years 2 & 3 | $2,206,530 (total)
This project's goal is to understand how circadian rhythms contribute to the development of heterotrophic organs and adaptation to different photoperiods in terms of quantitative loci, functional genomics, and gene regulatory networks.

**NSF REU Site** O'Shea (PI) 04/20 – 03/23
ICER Advanced Computational Research Experience for Students
**Role**: Co-PI; **Funding**: $401,233 (total)
ACRES REU at Michigan State University offers students the opportunity to conduct cutting-edge research in computational and data science under the supervision of faculty who are recognized experts in their disciplines.

**NIH NCATS OT2 Single Component Research Project** Chen (PI) 01/20 – 01/21
Drug biomarker resources for precise translational research
**Role**: Co-I, **Funding**: $624,347 (total)
This project's goal is to create a novel composite knowledge source for biomarker discovery that will improve the quality and quantity of drug-biomarker-disease-patient associations and synthesize new knowledge for precision medicine.

*Past*

**Thorek Memorial Foundation** Lipton, Vega (Multi-PI) 01/17 – 12/19
A High Throughput Process to Study Interacting Genetic Risk Factors in Disease through Informatics and Gene Modification
**Role**: Co-I; **Funding**: $4,200 over two years (direct)
This grant is to develop a combinatorial gene manipulation and functional screen (COGMAS) utilizing genomic data informed by functional network analyses.

**BEACON Center for the Study of Evolution in Action** Thompson (PI) 05/18 – 04/19
Developing methods to detect functional evolutionary change in expression profiles of rapidly evolving killifishes
**Role**: Co-I; **Funding**: $12,000 (direct)
The goal of this pilot project funded by BEACON Center for the Study of Evolution in Action is to develop methods to detect functional evolutionary change in expression profiles of rapidly evolving killifishes, particularly in instances of repeated, independent evolution of convergent phenotypes.

## Conferences, Meetings, and Talks

**Invited talks**
- 2020: Translational Science Seminar, MSU College of Medicine
- 2019: Computer Science Colloquium, Marquette University, Wisconsin.
- 2019: Board of Trustees Meeting, Michigan State University.
- 2019: “Biology on Tap” Public Lecture, Lansing.
- 2018: Genetics Seminar, Rutgers University.
- 2017: Wartik Genomics Seminar, Pennsylvania State University.
- 2016: Cancer Institute of New Jersey, Rutgers University.
- 2015: Sanofi Big Data Symposium, Genzyme, Boston.
- 2015: Princeton Area Yeast Meeting, Princeton University.
- 2014: Systems Pharmacology and Translational Therapeutics Seminar, University of Pennsylvania.
- 2014: Postdoctoral Seminar Series, Princeton University.
- 2014: Institute for Mathematical Sciences, Chennai, India.
- 2014: Indian Institute of Technology Madras, India.
- 2014: National Center for Biological Sciences, India.
- 2014: Centre for Cell and Molecular Biology, India.
- 2014: University of Hyderabad, India.
- 2013: Integrated Science Shorts, Princeton University.

**Oral Presentations**
- 2019: Great Lakes Bioinformatics Conference, Madison.
- 2019: Conference in Computational Health, Grand Rapids.
- 2019: ASBMB Symposium on Evolution and Core Processes in Gene Expression, Michigan State University.
- 2018: Big Data Ignite Conference, Grand Rapids.
- 2015: RECOMB/ICSB Conference on Regulatory and Systems Genomics, Philadelphia.
- 2015: Complex Systems Digital Campus World e-Conference.
- 2015: Leveraging Big Data and Predictive Knowledge to Fight Disease, New York Academy of Sciences.
- 2014: ICSB-RECOMB Systems Genomics Conference, San Diego.

**Poster Presentations**
- 2015: Genome Informatics, Cold-Spring Harbor Laboratories. *[Best Poster Award; out of 167 posters]*
- 2014: CIFAR: Genetic Networks Meeting, University of Washington.
- 2014: CIFAR: Genetic Networks Meeting, Dana-Farber Cancer Institute, Harvard Medical School.
- 2011: Systems Biology, Networks, Cold-Spring Harbor Laboratories.
- 2010: Networks Biology Workshop, Mathematical Biosciences Institute, Ohio State University.

## TEACHING

1. Introduction to Computational Modeling & Data Analysis – CMSE 201
   - Fall 2020 | Introduction to various aspects of computational science, a variety of practical, fundamental computational skills, and application-driven modeling of various systems, with applications to the physical, life, and social sciences, and also to engineering and mathematics. Each flipped class involves a range of activities – primarily by writing software both individually and in small groups, but also through discussion, presentations, and other types of exercises.
2. Bioinformatics and Computational Biology – CMSE 410 & 890-005
   - Spring 2018, 2019, 2020 | Introduction to the inner-workings of methods in bioinformatics & computational biology: analytical techniques, algorithms, and statistical/machine-learning approaches developed to address key questions in biology and medicine. Students will also learn how to formulate problems for quantitative inquiry, design computational projects, think critically about data & methods, do reproducible research, and communicate findings.
3. Gaps, Missteps, and Errors in Statistical Data Analysis – BMB 961-301 / CMSE 890-310
   - Fall 2018, 2019 | A short course on conceptual gaps and errors in both the practice and the interpretation of statistical data analyses. Classwork involves lectures, discussions, and hands-on statistics/data-analysis exercises using programming (R/Python).
4. University-wide Bioinformatics Workshops at MSU
   - Summer 2017 | Hands-on training in Linux/R/Python programming, Statistical data analysis and visualization, and Analysis of various types of genomic data (e.g. RNA-seq) to 32 members of the MSU community including undergraduates, PhD students, and faculty members. These course materials form the basis of the 1-credit Bioinformatics modular courses subsequently taught every semester by Alexis Black starting Fall 2017, which, up to now, have been taken by 142 students.
5. *Past experiences (at Princeton University)*
   - Spring 2015 | Co-taught ISC 233/234: An Integrated, Quantitative Introduction to the Natural Sciences II
   - Spring 2014 | Co-taught COS557/MOL557: Analysis & Visualization of Large Scale Genomic Data Sets

## MENTORING AND OUTREACH

1. **Team Members (Current & Past)**:
   - Postdoctoral researchers: (Current) Chris Mancuso, Stephanie Hickey
   - Graduate students: (Current) Nathaniel Hawkins, Kayla Johnson, Renming Liu, Alex McKim, Anna Yannakopoulos
   - Undergraduate students: (Current) Jake Canfield, (Past) A. Almounajed, N. Davis, A. Hashsham, R. Liu, M. Maldaver, A. Metto, C. Nnawulezi, D. Singla, J. Vasquez, S. Vatti, K. Warfle
   - High-school students: (Current) Jainil Shah, (Past) R. Banerjee, E. Bruce, D. Gomez
2. **Team Member Honors:**
   - Christopher Mancuso (postdoc): NIGMS NIH Kirschstein-NRSA Postdoctoral Fellowship
   - Stephanie Hickey (postdoc): MSU BMB TEAM-UP Award
   - Anna Yannakopoulos (grad student): MSU Engineering Distinguished Fellowship
   - Kayla Johnson (grad student): Honorable Mention – NSF Graduate Research Fellowship
   - Alex McKim (grad student): MSU Engineering Distinguished Fellowship
   - Renming Liu (grad student): MSU CMSE Ginther Fellowship
   - Nathaniel Hawkins (grad student): Rasmussen Doctoral Recruitment Award; MSU Egr. Distinguished Fellowship
3. **Student Committees:**
   - (MSU) Danielle Barnes, Reid Blanchett, Norman Chamusah, David Filipovic, Justin Lee, Brian Nohomovich, Christine Ponnampalam, Ana-Maria Raicu, and Wei Wang.
   - External thesis examiner: Amrita School of Engineering, India
4. **Professional Development**:
   - 2018–2020: “Surviving, Enjoying, and Excelling in your PhD”. Conducted at MSU (Broadening Experiences in Scientific Training Program, DO-PhD Annual Student Retreat, BMB Exchange) and Rutgers University
   - 2018–2019: “Planning and Executing an Effective Postdoc Training”. Conducted at MSU and Rutgers University.
   - 2017, 2018: Session on “Faculty Job Search” and a session on “Planning and Executing an Effective Postdoc”. Conducted at MSU.

5. **Outreach:**
   - 2019: Interactive session with East Lansing High School Females in STEM student club; through this interaction, two high school students from this group are now working in labs at MSU.
   - 2019: “Biology on Tap” public talk on “Data & algorithms for better health & medicine”.
   - 2018: “Skype a Scientist” – 30-60 minute Q and A sessions with classrooms across the world.
   - 2010: “Mutant plants!” – hands-on education booth at USA Science & Engineering Festival.
   - 2009, 2010: “Mutant plants!” – hands-on education booths at Kid’s Tech University, Virginia Tech’s public outreach program.
6. **Broadening Participation of Under-represented Groups in STEM**:
   - Mentoring underrepresented trainees in research:
     - *2 high-school students:* female (R Banerjee), African American (E Bruce)
     - *6 undergraduate students:* African American/female (A Metto, C Nnawulezi), Latino (J Vasquez), female (K Warfle, R Banerjee, S Vatti)
     - *2 graduate students:* female (A Yannakopoulos, K Johnson)
     - *1 postdoc*: female (S Hickey).
   - Faculty Advisor of R-Ladies East Lansing, a local chapter of R-Ladies Global.
   - 2019: Session on ‘Research & Career’ for Females in STEM student group at East Lansing High School.
   - 2017: Session on a ‘Career in Biotechnology’ for the Latinos-2-College Program for high school students ($8^{th}$-$10^{th}$ grade) from the Lansing School District.

## Professional Memberships and Services

1. **University/Academic Services:**
   - Search committee: (MSU) Precision Pediatrics and Human Genomics; Computational Math, Science and Engineering; Biomedical Engineering.
   - Departmental work: Graduate Studies Committee; Data Science Curriculum Committee; Advisory Committee; Long-term Planning Committee.
2. **Memberships & Services in Professional Communities:**
   - Posters Co-chair (2017, 2018), Chair (2019, 2020) Intelligent Systems for Molecular Biology (ISMB).
   - Program committee: Great Lakes Bioinformatics Conference 2019.
   - 2019-2020 Faculty Fellow (Teaching & Technology) at the Hub@MSU.
   - Peer-review: Pacific Symposium of Biocomputing; ACM Conference on Bioinformatics and Computational Biology.
   - Post-publication review: F1000 Biology.
   - Internal advisory committee, Center for Research in Autism, Intellectual and other Neurodevelopmental Disabilities.
3. **Peer review:**
   - Academic Journals: BioData Mining; Bioinformatics; BMC Bioinformatics; Circulation: Cardiovascular Genetics; G3: Genes, Genomes, Genetics; IEEE/ACM Transactions on Computational Biology and Bioinformatics; Journal of Theoretical Biology; Molecular Autism, Molecular Breeding; mSystems; Nature Communications; Nature Neuroscience; Nucleic Acids Research; Plant Physiology; Plant Molecular Biology; PLoS Computational Biology; PLoS ONE; Proceedings of the National Academy of Sciences; Scientific Reports
   - National Science Foundation: Ad-hoc reviewer of proposals/applications
   - National Institutes of Health: Biodata Management and Analysis Study Section

**Amy Ralston, Ph.D.**
***Curriculum Vitae***

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**Google Scholar Profile:** https://scholar.google.com/citations?user=xZAWlosAAAAJ&hl=en

**Positions**

| | | |
|---|---|---|
| 2016- | Endowed Associate Professor | Dept. of Biochemistry and Molecular Biology<br>Michigan State University, East Lansing, MI |
| 2014-2016 | Assistant Professor | Dept. of Biochemistry and Molecular Biology<br>Michigan State University, East Lansing, MI |
| 2009-2014 | Assistant Professor | Dept. of Molecular, Cell & Developmental Biology<br>University of California Santa Cruz, Santa Cruz, CA |

**Education & Training**

| | | |
|---|---|---|
| 2004-2009 | Postdoctoral Fellow | Hospital for Sick Children, Toronto, ON<br>Laboratory of Janet Rossant, Ph.D., FRS |
| 2004 | Ph.D., Zoology | University of Wisconsin, Madison, WI<br>Laboratory of Seth S. Blair, Ph.D. |
| 1995 | B.A., Biochemistry | Oberlin College, Oberlin, OH |

## 1. Personal Statement

My research is focused on discovering how genes regulate cell state during stem cell differentiation and in developing embryos. This goal is the first step toward developing new stem cell therapies for the study and treatment of human diseases and birth defects. In my ten years as an independent investigator, I have worked to establish a track record as an inclusive leader and effective mentor. In 2016, I was awarded the Presidential Early Career Award for Scientists and Engineers (PECASE) by President Barack Obama, the highest honor given by the White House to scientists at my level.

My mentoring approach includes three major tenets. 1) Everyone is motivated differently. 2) People learn by doing. 3) I am my mentees' number one advocate. I currently lead a group of five graduate students, most of whom are from backgrounds that are underrepresented in science.

Several activities have strongly influenced my lessons in mentoring. In 2015-2018, I served as organizer of the Cold Spring Harbor Lab Course in *Mouse Development, Stem Cells, and Cancer*, which has trained advanced students in the use of mouse models of human disease since 1982. I have served as a preceptor for several NIH-funded training programs. Currently, I serve as Associate Director of the Cell and Molecular Biology Graduate Program and I am the inaugural Career-Life Balance Ombud for my department.

I am delighted to work with Dr. Arjun Krishnan, my colleague and collaborator, to host and mentor a trainee through the African Futures Program. Dr. Krishan and I co-supervise a postdoctoral fellow currently, and our laboratories meet monthly to discuss genomic experimentation and analysis. I believe Dr. Krishnan and I can serve as dedicated and mindful participants in this exciting program.

## 2. Research

### Preprints (not listed after peer reviewed publication)

- Halbisen MA and **Ralston A**.* (2017). Manuscript 101: a data-driven manuscript writing exercise for beginning scientists. bioRxiv, 139204. **Corresponding author.*

### Peer-Reviewed Research Publications

- Frum T, Watts JL, and **Ralston A.*** (2019). TEAD4/YAP1/WWTR1 prevent the premature onset of pluripotency prior to the 16-cell stage. *Development 146 pii: dev179861.* DOI: 10.1242/dev.179861. **Corresponding author.*
- Frum T, Murphy TM, and **Ralston A.*** (2018). HIPPO signaling resolves embryonic cell fate conflicts during establishment of pluripotency in vivo. *eLife* 2018;7:e42298. **Corresponding author.*

- Midic U, Vincent KA, Wang K, Lokken A, Severance AL, **Ralston A**, Knott JG, Latham KE. (2018). Novel key roles for Structural maintenance of chromosome flexible domain containing 1 (Smchd1) during preimplantation mouse development. *Mol Reprod Dev* doi: 10.1002/mrd.23001.
- Huang D, Han X, Yuan P, **Ralston A**, Sun L, Huss M, Mistri T, Pinello L, Ng HH, Yuan G, Ji J, Rossant R, Robson P, and Guo G. (2017). The role of Cdx2 as a lineage specific transcriptional repressor for pluripotent network during trophectoderm and inner cell mass specification. *Scientific Reports 7*, 17156.
- Aykul S, Parenti A, Chu KY, Reske J, Floer M, **Ralston A**, Martinez-Hackert E. (2017). Biochemical and cellular analysis reveals ligand binding specificities, a molecular basis for ligand recognition, and membrane association dependent activities of Cripto-1 and Cryptic. *Journal of Biol Chem 292*, 4138-51.
- Parenti A, Halbisen M, Wang K, Latham K, and **Ralston A**.* (2016). OSKM induce extraembryonic endoderm stem cells in parallel to iPS cells. *Stem Cell Reports* 6, 447-55. *Corresponding author.
- Blij S, Parenti A, Tabatabai-Yazdi N*, and **Ralston A****. (2015). *Cdx2* efficiently induces trophoblast stem-like cells in naïve, but not primed, pluripotent cell lines. *Stem Cells Dev* 24, 1352-65. **Undergraduate*, ***Corresponding author. JOURNAL COVER.*
- Wicklow E, Blij S, Frum T, Hirate Y, Sasaki H, Lang RA, and **Ralston A***. (2014). Hippo-regulated Sox2 is restricted to ICM where it promotes non-pluripotent cell fates. *PLoS Genetics* 10, e1004618. **Corresponding author.*
- Frum T, Halbisen M, Wang C, Robson P, and **Ralston A***. (2013). Oct4 cell-autonomously promotes development of primitive endoderm in the mouse blastocyst. *Developmental Cell* 25, 610-622. *PREVIEWED FEATURE. *Corresponding author.*
- Blij S, Frum T, Akyol A, Fearon E, and **Ralston A***. (2012). Maternal *Cdx2* is dispensable for mouse development. *Development* 139, 3969-3972. **Corresponding author.*

**Invited Previews, Reviews, and Chapters**

- Frum T and **Ralston A*.** (2019). Visualizing HIPPO Signaling Components in Mouse Early Embryonic Development. *Methods Mol Biol* 1893, 335-352.
- Frum T and **Ralston A*.** (2018). Attractin' attention to early mouse development. *Cell* 173, 544-545.
- Watts J, Lokken A, Moauro A, and **Ralston A*.** (2018). Capturing and Interconverting Cell Fates in a Dish Cell Fate in Mammalian Development, *Current Topics in Developmental Biology* 128, 181-199.
- **Ralston A*.** (2018) XEN and the Art of Stem Cell Maintenance: Molecular Mechanisms Maintaining Cell Fate and Self-Renewal in Extraembryonic Endoderm Stem (XEN) Cell Lines. In: Knott J., Latham K. (eds) Chromatin Regulation of Early Embryonic Lineage Specification. *Advances in Anatomy, Embryology and Cell Biology* 229, 69-78. Springer.
- Frum T and **Ralston A***. (2017). Pluripotency – what does cell polarity have to do with it? Ed. Doug Houston. Cell Polarity in Development and Disease. *Cell Biology in Molecular Medicine*, Ed. Michael Conn. 1, 31-57. New York: Elsevier. *Corresponding author.
- **Ralston A.** (2016). At the four-front of mammalian development. *Trends in Genetics* 7, 402-410.
- Lokken A and **Ralston A***. (2016). The Genetic Regulation of Cell Fate During Preimplantation Mouse Development. Ed. Melvin DePamphilis. Mammalian Preimplantation Development. New York: Elsevier. (Invited submission for *Current Topics in Developmental Biology, 2016*). *Corresponding author.
- Parenti T and **Ralston A***. (2015). Three-two-one…tropho-BLAST-OFF! *Cell Stem Cell* 17, 499-500. *Corresponding author.
- Frum T and **Ralston A***. (2015). Mechanisms of cell fate assignment during the first days of mammalian development. *Trends in Genetics* 31, 402-10. *Corresponding author.
- Halbisen MA and **Ralston A** *. (2014). Shaking up the salt and pepper: origins of cellular heterogeneity in the inner cell mass of the blastocyst. *Embo J*, 33, 280-1. **Corresponding author.*
- Yamanaka Y and **Ralston A**.* (2010). Early Embryonic Cell Fate Decisions in the Mouse. Eds. Eran Meshorer and Kathrin Plath. The Cell Biology of Stem Cells, pp. 1-13. New York: Landes Biosciences. *Advances in Experimental Medicine and Biology, 695*. **Corresponding author.*

**F1000Prime Manuscript Reviews:**

- **Ralston A**: F1000Prime Recommendation of [Hainer SJ et al., Cell 2019 177(5):1319-1329.e11]. In F1000Prime, 20 Jan 2020; 10.3410/f.735454597.793569673

**Peer-Reviewed Research Publications Prior to Independence**

- **Ralston A**, Cox B, Nishioka N, Sasaki H, Chea E*, Rugg-Gunn P, Guo G, Robson P, Draper JS, and Rossant J. (2010). Gata3 regulates trophoblast fate downstream of *Tead4* and in parallel to Cdx2. *Development* 137, 395-403. *Undergrad. *JOURNAL COVER AND PREVIEWED FEATURE.*

- Rugg-Gunn PJ, Cox BJ, **Ralston A**, and Rossant J. (2010). Unique lineage-specific epigenetic gene regulatory mechanisms in stem cells and tissue lineages from the early mouse embryo. *Proceedings of the National Academy of Sciences* 107, 10783-10790.
- Nishioka N, Inoue K, Adachi K, Kyonari H, Ota M, **Ralston A**, Yabuta N, Hirahara S, Stephenson RO, Ogonuki N, Makita R, Kurihara H, Morin-Kensicki EM, Nojima H, Rossant J, Nakao K, Niwa H, Sasaki H. (2009). The Hippo signaling pathway components Lats and Yap pattern Tead4 to distinguish mouse trophectoderm from inner cell mass. *Developmental Cell* 16, 398-410.
- Serpe M, Umulis D, **Ralston A**, Chen J, Olson DJ, Avanesov A, Othermer H, O'Connor MB, and Blair SS. (2008). The BMP-binding protein Crossveinless 2 is a short-range concentration-dependent, biphasic modulator of BMP signaling in Drosophila. *Developmental Cell* 14, 940-953.
- **Ralston A** and Rossant J. (2008). Cdx2 acts downstream of cell polarization to cell-autonomously promote trophectoderm fate. *Developmental Biology* 313, 614-629.
- Strumpf D, Mao CA, Yamanaka Y, **Ralston A**, Chawengsaksophak K, Beck F, and Rossant J. (2005). *Cdx2* is required for correct cell fate specification and trophectoderm differentiation in the mouse blastocyst. *Development* 132, 2093-2102.
- Serpe M, **Ralston A**, Blair SS, and O'Connor MB. (2005). Matching catalytic activity to developmental function: Tolloid-related processes Sog in order to help specify the posterior cross vein in the *Drosophila* wing. *Development* 132, 2645-2656.
- Shimmi O,* **Ralston A**,* Blair SS, and O'Connor MB. (2005). The crossveinless gene encodes a new member of the Twisted gastrulation family of BMP binding proteins which, with Short gastrulation, promotes BMP signaling in the cross veins of the *Drosophila* wing. *Developmental Biology* 282, 70-83. **Co-first authors*.
- **Ralston A** and Blair SS. (2005). Long-range Dpp signaling is regulated to restrict BMP signaling to a cross vein competent zone. *Developmental Biology* 280, 187-200.
- Conley CA, Silburn R, Singer MA, **Ralston A**, Rohwer-Nutter D, Olson DJ, Gelbart W, and Blair SS. (2000). Crossveinless 2 contains cysteine-rich domains and is required for high levels of BMP-like signaling during the formation of the cross veins in *Drosophila*. *Development* 127, 3947-3959.
- Blair SS and **Ralston A**. (1997). Smoothened-mediated Hedgehog signaling is required for the maintenance of the anterior-posterior lineage restriction in the developing wing of *Drosophila*. *Development* 124, 4053-4063.

**Reviews and Chapters Prior to Independence**

- **Ralston A** and Rossant J. (2010). The genetics of induced pluripotency. *Reproduction* 139, 35-44.
- Yamanaka Y, **Ralston A**, Stephenson RO, and Rossant J. (2006). Cell and molecular regulation of the mouse blastocyst. *Developmental Dynamics* 235, 2301-14.
- **Ralston A** and Rossant J. (2006). How signaling promotes stem cell survival: trophoblast stem cells and Shp2. *Developmental Cell* 10, 275-6.
- **Ralston A** and Rossant J. (2005). The genetic regulation of stem cell origins in the blastocyst. *Clinical Genetics* 68, 106-12.

**Awards & Honors, since independence**

| | |
|---|---|
| 2019 | Invitation to serve as a permanent member of NIH Study Section (DEV2), NIH Center for Scientific Review (invitation declined) |
| 2019 | John Doctor Education Prize, Society for Developmental Biology |
| 2019 | Illumina Women in Genomics Award (1 of 50 awards given) |
| 2016-2022 | James K. Billman, Jr., M.D. Endowed Professorship |
| 2016 | American Society for Cell Biology/Gibco Emerging Leader Prize, Finalist |
| 2016 | Presidential Early Career Award for Scientists and Engineers, White House Office of Science and Technology Policy, Washington, D.C. |
| 2015 | Early Career Grant Reviewer, NIH Center for Scientific Review (DEV2 Study Section) |
| 2013 | Favorite Faculty Member, Stevenson College, UCSC |
| 2012 | NIH-NICHD Contraception & Infertility Research Loan Repayment Program, Renewal |
| 2011 | Top-cited Article 2008-2010, *Developmental Biology* |
| 2011 | Commencement Speaker, Biograd Commencement Ceremony, UCSC |
| 2011 | Universal Design in Instruction Award, Disability Resources Center, UCSC |
| 2010 | NIH-NICHD Contraception and Infertility Research Loan Repayment Program Award |
| 2010 | New Scholar in Aging Award, Ellison Medical Foundation |

**Other Positions & Affiliations, since independence**

| | | |
|---|---|---|
| 2019- | Associate Director | Cell and Molecular Biology Graduate Program, MSU |
| 2019- | F1000Prime, Faculty Member | Morphogenesis & Cell Biology Section |

| | | |
|---|---|---|
| 2016- | Preceptor | NIH T32 HD087166 (PIs: Latham, Fazleabas) |
| 2015-18 | Co-Instructor | Cold Spring Harbor Lab Course in *Mouse Development, Stem Cells, and Cancer*, Cold Spring Harbor, NY |
| 2009 | Article Contributor | Scitable, *Nature Education* (13 articles) |
| 2009-2014 | Preceptor | NIH T32 GM008646 (PI: Strome) |

**Press**

- *Development* preview, September 2019: https://dev.biologists.org/content/146/17/e1702
- MSU College of Natural Sciences, BMB TEAM-UP Program, September 2019: https://natsci.msu.edu/news/new-early-career-award-trains-world-class-postdocs-advances-wheels-of-innovation/
- Illumina Genomics Podcast, Episode 38, March 2019: https://www.illumina.com/science/genomics-podcast.html
- Science Daily, December 2018: https://www.sciencedaily.com/releases/2018/12/181211080922.htm
- Futurity, December 2018: https://www.futurity.org/pluripotent-stem-cells-proteins-1930332/
- Eurekalert AAAS, December 2018: https://www.eurekalert.org/pub_releases/2018-12/msu-tso121018.php
- American Society for Cell Biology Newsletter, March 2017: http://www.ascb.org/ascb-post/member-news/essays-by-four-ascb-gibco-prize-recipients/
- Official Journal of the Society for Developmental Biology, *Developmental Biology,* April 2016: http://www.sciencedirect.com/science/article/pii/S0012160616000713?via%3Dihub
- Lansing State Journal, April 2016: http://www.lansingstatejournal.com/story/news/local/2016/04/09/michigan-state-tony-parenti-stem-cell/82351734/
- WKAR Public Radio, East Lansing, MI, March 2016: http://wkar.org/post/msu-researchers-discover-new-stem-cell-genetic-trash-pile
- California Institute for Regenerative Medicine (CIRM) Blog, March 2016: https://blog.cirm.ca.gov/tag/amy-ralston/
- Science Daily, March 2016: https://www.sciencedaily.com/releases/2016/03/160303133512.htm
- Science Daily, October 2014: https://www.sciencedaily.com/releases/2014/10/141030114957.htm

**Invited Talks & Seminars (excluding job talks)**

2019 Cold Spring Harbor Laboratory Course in *Mouse Development, Stem Cells, and Cancer* (invitation declined)
2019 Icahn School of Medicine at Mount Sinai, Department of Cell, Developmental and Regenerative medicine (Seminar)
2019 American Society for Cell Biology, HIPPO Focus Group, Washington, D.C. (invitation declined)
2019 Society for Developmental Biology Annual Meeting, Boston, MA (Platform)
2019 Gordon Research Conference on Fertilization and Activation of Development, Holderness, NH (Plenary)
2019 Frontiers in Reproduction Course, Woods Hole Marine Biology Laboratory, Woods Hole, MA (1 Lecture)
2019 Oregon Health Sciences University, Portland, OR (Seminar)
2019 Department of Stem Cell and Developmental Biology, Hospital for Sick Children, Toronto, ON (Seminar)
2018 Gene Regulatory Networks for Development, Woods Hole Marine Laboratory, Woods Hole, MA (invitation declined)
2017 NIEHS, Research Triangle Park, NC (Seminar)
2017 Gene Regulatory Networks for Development, Woods Hole Marine Laboratory, Woods Hole, MA (2 lectures)
2017 Cincinnati Children's Research Foundation, Cincinnati, OH (Seminar)
2017 Children's Hospital Research Institute, London, ON (Seminar)
2017 Epigenetics, Stem Cells, and Environmental Health Symposium & Workshop, NIEHS, Research Triangle Park, NC (Speaker, *declined)*
2017 Reproductive Science and Medicine Summit, Northwestern University (Distinguished Speaker, *declined*)
2017 Frontiers in Reproduction Course, Woods Hole Marine Biology Laboratory, Woods Hole, MA (1 Lecture, *declined*)
2017 Department of Biology, University of Kentucky, Lexington, KY (Seminar)
2016 Department of Cell Biology, Neurobiology, and Anatomy, Medical College of Wisconsin, Milwaukee, WI (Seminar)
2016 C.S. Mott Center for Human Growth and Development, Department of Obstetrics and Gynecology, Wayne State University, Detroit, MI (Seminar)
2016 Society for Developmental Biology Meeting, Boston, MA (Platform)
2016 Cold Spring Harbor Course in Mouse Development, Stem Cells, and Cancer, Cold Spring Harbor, NY (Lecture)
2015 Stowers Institute for Medical Research, Kansas City, MO (Seminar)
2015 Greenwald Symposium on Reproductive and Regenerative Medicine, University of Kansas Medical Center, Kansas City, MO (Plenary)
2015 Society for Developmental Biology Midwest Meeting, Ann Arbor, MI (Platform)
2015 Cold Spring Harbor Course in Mouse Development, Stem Cells, and Cancer, Cold Spring Harbor, NY (Lecture)
2015 Department of Biology, Indiana University-Purdue University, Indianapolis, IN (Seminar)
2014 Department of Stem Cell and Developmental Biology, Hospital for Sick Children, Toronto, ON (Seminar)
2014 Cold Spring Harbor Course in Mouse Development, Stem Cells, and Cancer, Cold Spring Harbor, NY (Lecture)
2014 Department of Developmental Biology, Washington University in St. Louis, St. Louis, MO (Seminar)

2013 Reproductive and Stem Cell Biology Retreat, Stanford University, Palo Alto, CA
2013 CA/Harvard Stem Cell PI Meeting, UCLA, Los Angeles, CA (Platform)
2013 Department of Cell Biology, Skirball/NYU Med Center, New York, NY (Seminar)
2012 Santa Cruz Developmental Biology Meeting, Santa Cruz, CA (Plenary)
2010 Santa Cruz Developmental Biology Meeting, Santa Cruz, CA (Plenary)
2010 Centre for Trophoblast Research Annual Meeting, Cambridge, UK
2010 CA/Harvard 1st Generation Stem Cell PI Meeting, UCSF, San Francisco, CA

**Oral Presentations (selected from submitted abstract)**

2013 Midwest Regional Society for Developmental Biology Meeting, St. Louis, MO
2013 Northeast Regional Society for Developmental Biology Meeting, Woods Hole, MA
2013 Stem Cells & Aging Symposium, Santa Cruz, CA
2012 Mouse Molecular Genetics Meeting, Pacific Grove, CA
2010 International Society for Stem Cell Research Annual Meeting, San Francisco, CA

**Funding**

ACTIVE FUNDING

**NIH R35 GM113759** (Ralston, PI) 5/1/2019-4/30/2024
National Institutes of Health
Title: Molecular mechanisms regulating formation of diverse stem cell progenitors
Impact Score: 16

**James K. Billman, Jr., M.D., Endowed Professorship** 04/14/2016-04/12/2021
Department of Biochemistry & Molecular Biology, Michigan State University
Role: PI

PENDING

**Meeting Grant** (Ralston and Rossant, PIs) Submitted 12/01/2019
Society for Developmental Biology
Title: Hindsight is 2020 – 40th Anniversary Celebration of the Great Lakes Mammalian Development Meeting

COMPLETED FUNDING

**NIH R01 GM104009** (Ralston, PI) 9/01/2013-8/31/2019
National Institutes of Health
Title: Molecular regulation of cell fate in stem cells and early mouse embryos
Percentile: 6th

**NIH R01 Administrative Supplement** (Ralston, PI) 4/01/2015-7/31/2016
National Institutes of Health
Title: Equipment supplement for parent R01 award GM104009

**NIH 1 R13 HD081860 01** (Laird, PI) 7/15/2014-6/30/15
National Institutes of Health
Title: The 2014 Santa Cruz Developmental Biology Meeting
Role: Co-PI

**New Scholar in Aging Award, AG-NS-0731-10** (Ralston, PI) 8/01/2010-7/31/2014
Ellison Medical Foundation
Title: Examining the impact of aging on cellular reprogramming

**Faculty Research Grant** (Ralston, PI) 7/1/2013-6/30/2014
University of California Santa Cruz Committee on Research
Title: Evaluating the role of the placenta as a regulator of neural tube closure in the fetus

**Special Research Grant** (Ralston, PI) 5/14/10-5/13/11
UCSC Committee on Research
Title: Examining the impact of aging on cellular reprogramming

**Faculty Research Grant** (Ralston, PI) 9/9/09-9/8/10
UCSC Committee on Research
Title: Resolving multiple pluripotent states in stem cell lines from the mouse

## 3. Teaching & Mentoring

### Course Co-Organizer and Co-Instructor (MSU)

2019 *BMB462 Advanced Biochemistry II 3 credits* (half course)
2019 *BMB960/GEN800/CMB800 Chromatin Dynamics and Gene Expression in Development 1 Credit* (Course Coordinator and 25% of lectures)
2018 *BMB462 Advanced Biochemistry II 3 credits* (half course)
2018 *BS161 Cells and Molecules 3 credits* (half course)
2018 *BMB978 Seminar in Biochemistry 1 credit* (with grading)
2017 *BMB978 Seminar in Biochemistry 1 credit* (no grading)
2017 *BS161 Cells and Molecules 3 credits* (half course)
2016 *BS161 Cells and Molecules 3 credits* (half course)
2015 *BS161 Cells and Molecules 3 credits* (half course)

### Additional Lectures (MSU)

2020 *ANS425 Animal Biotechnology* (lecture invitation declined)
2019 *PLB806 Epigenetics* (lecture invitation declined)
2019 *ANS 490/890: Stem Cells in Reproduction, Development, and Regeneration* (lecture invitation declined)
2017 *ANS815 Advanced Topics in Reproduction and Development* (1 lecture and exam questions)
2016 *BMB101 Frontiers in Biochemistry* (1 lecture, with grading)
2016 *Grand Rounds, Department of Medicine* (1 lecture)

### Course Organizer and Primary Lecturer (UCSC)

2014 *BIOL 120 Developmental Biology* (full course)
2013 *BIOL 120 Developmental Biology* (full course)
2011 *BIOL 120 Developmental Biology* (full course)

### Additional Lectures (UCSC)

2014 *BIOL 200D Developmental Biology* (4 lectures)
2013 *BIOL 200D Developmental Biology* (4 lectures)
2012 *BIOL 200D Developmental Biology* (4 lectures)
2012 *BIOL 289 Practice of Science* (1 lecture)
2011 *BIOL 200D Developmental Biology* (4 lectures)
2010 *BIOL 200D Developmental Biology* (4 lectures)
2010 *BIOL 289 Practice of Science* (1 lecture)
2010 *BIOL 178 Stem Cell Biology* (1 lecture)
2010 *BIOL 120 Development* (1 lecture)

### Professional Development

2019 *Cultural competency for personal, organizational, and community change*, Workshop, NatSci MSU
2018 *Optimizing the Practice of Mentoring*, Online Course, University of Minnesota

### Undergraduate Research Students Supervised (MSU)

2019- Carlos Ferran-Hereidia
2019 Minelly Gonzalez Acevedo, RDSP undergrad from University of Puerto Rico
2019 Victor Gipson II, SROP student from University of Georgia
2018-2019 Raghav Jain, BMB499 Senior Thesis (Secondary Reader for research conducted abroad at Karolinska Institute, Sweden)
2016-2017 Eli Falk, Lymann Briggs, Professorial Assistant Program
2016 Allie Mohr
2016 Mary Alsheikh
2016-2018 Hannah Guider
2016 Kayla Matheny
2016-2019 Matthew Walny
2016 Sreya Modipalli
2014-2016 William Garcia (Human Biology, Honor's College)
2014-2016 Jamie L. Maurice (Clinical Laboratory Science; Recipient, BMB Undergraduate Research Award)
2015-2015 Vixey Silva (Lyman Briggs)

2015-2016 Patty Glover (Biochemistry)
2015-2016 Blake Geraltowski (Human Biology)

**Undergraduate Research Students Supervised (MSU)**

2013-2014 Heidi Molga (Honor's Thesis), UCSC
2013-2014 Amit Weiss (Admitted to Ph.D. program, UC Berkeley), UCSC
2013-2014 Roberto Lopez Cervera (Undergraduate Research Award), UCSC
2012-2013 Margaret Donovan (Dean's Award 2012; Ph.D. program, UCSD), UCSC
2012-2013 Atesh Worthington (Admitted to Ph.D. program, Duke University), UCSC
2011-2012 Eryn Wicklow (1st author manuscript published), UCSC
2012-2013 Nicholas Kasho, UCSC
2010-2013 Neeloufar Tabatabai-Yazdi (Coauthor on Ralston Lab publication), UCSC
2012-2012 Andrea Quinones-Rivera, UCSC
2011-2011 Sophia Petraki (Abstract selected for SACNAS Conference talk), UCSC
2010-2012 Lane Sharon, UCSC
2010-2010 Andrew Forster, UCSC

**Graduate Students Supervised**

2019- Robin Seay
- Cell and Molecular Biology Ph.D. Program
- NIH Training Grant (T32 HD087166) 2019-present

2018- Tayler Murphy
- Genetics Ph.D. Program
- NIH Training Grant (T32 HD087166) 2018-present

2017- Jennifer Watts
- Physiology Ph.D. Program
- NIH Training Grant (T32 HD087166) 2017-2019
- Best poster, Biomolecular Sciences Program Retreat, MSU, 2018
- First Place Talk, AGEP Student Success Conference, MSU, 2019

2017- Alexandra Moauro
- D.O./Ph.D. Program

2011-2016 Anthony Parenti
- Ph.D., 2016
- CIRM Training Grant 2012-2014
- Advanced to candidacy at MSU, 2014
- Poster Prize, Midwest Society for Dev Bio Meeting 2015
- Outstanding Graduate Researcher Award, MSU, BMB ($700), 2016
- Current position: student, UC Davis School of Law, Davis, CA

2010-2011 Anthony Parenti
- Master's in Biotechnology, San Jose State University
- CIRM Bridges to Stem Cell Research Internship Program, UCSC

2009-2014 Stephanie Blij
- Ph.D. 2014, UCSC
- NIH Training Grant 2010-2012
- Company of Biologists, UK Travel Award 2012
- Current Position: student, UC Hastings Law School, San Francisco, CA

2009-2014 Tristan Frum
- Ph.D. 2014, UCSC
- NIH Training Grant 2010-2012
- CIRM Training Grant 2013-2014
- Poster Prize, West Coast Society for Dev Bio Meeting 2011
- ASCB Travel Award, 2013
- Current Position: postdoctoral fellow, Laboratory of Dr. Jason Spence, University of Michigan

**Graduate Rotation Students (MSU)**

2019 Axel Schmitter (Ph.D. Program)
2019 Robert Fidis (Ph.D. Program)
2019 Robin Seay (Ph.D. Program)

2017 Tayler Murphy (Ph.D. Program)
2017 Ana-Maria Raicu (Ph.D. Program)
2016 Jennifer Watts (Ph.D. Program)
2016 Alexandra Moauro (D.O./Ph.D. Program)
2016 Reid Blanchett (Ph.D. Program)
2016 Erika Sarno (D.O./Ph.D. Program)
2016 Vanessa Benham (Ph.D. Program)
2015 Sean Nguyen (Ph.D. Program)
2014 Matthew Lewis (Ph.D. Program)

**Graduate Rotation Students (UCSC)**

2013 Akshi Jasani, UCSC
2012 Jessica Perez, UCSC
2011 Hossein Amiri, UCSC (*Coauthor on Ralston Lab publication*)
2011 Zach Neeb, UCSC
2010 Tristan Frum, UCSC
2010 Stephanie Blij, UCSC

**Graduate Guidance Committees (MSU)**

2019- Olivia Fitch, Laboratory of Dr. Ingo Braasch
2019- Thu Dong, Laboratory of Dr. Hanne Hoffman
2019- Genna Wilber, Laboratory of Dr. Asgeraldi Fazleabas
2019- Aaron Wasserman, Laboratory of Dr. Aitor Aguirre
2019- Zhaoran Zhang, Laboratory of Dr. Yuan Wang
2018- Alice Chu, Laboratory of Dr. Erik Martinez-Haeckert
2018- Kayla Johnson, Laboratory of Dr. Arjun Krishnan
2018- Ana-Maria Raicu, Laboratory of Dr. David Arnosti
2016- Sean Nguyen, Laboratory of Dr. Margaret Petroff
2015 Katelyn Gagne, Laboratory of Dr. Kurt Hankenson
2015 *(Committee Chair)* Ashley Severance, Laboratory of Dr. Keith Latham

**Graduate Guidance Committees (UCSC)**

2014 Jessica Perez, Laboratory of Dr. Camilla Forsberg, UCSC
2013 Ricardo Letiao, Laboratory of Dr. Doug Kellogg, UCSC
2013 Miten Jain, Laboratory of Dr. Mark Akeson, UCSC
2013 Robert Sommer, Laboratory of Dr. Doug Kellogg, UCSC
2013 Prestina Smith, Laboratory of Dr. Lindsay Hinck, UCSC
2012 Jesse Clark, Laboratory of Dr. Doug Kellogg, UCSC
2012 Tisha Bohr, Laboratory of Dr. Needhi Bhalla, UCSC
2012 Mimmi Ballard, Laboratory of Dr. Lindsay Hinck, UCSC
2010 Scott Boyer, Laboratory of Dr. Camilla Forsberg, UCSC
2009 Muriel Kmet, Laboratory of Dr. Bin Chen, UCSC

**Postdoctoral Fellows Supervised**

2019- Stephanie Hickey, Ph.D.
- Co-supervised with David Arnosti and Arjun Krishnan
- Recipient of BMB TEAM-UP Award

2014-19 Tristan Frum, Ph.D.
- Best oral presentation, Michigan Area Reproductive Technologies Annual Meeting, 2017
- 2016, Best Oral Presentation Award, Midwest Society for Developmental Biology Meeting, Ann Arbor, MI
- 2015 Best Poster Award, Midwest Society for Developmental Biology Meeting, Ann Arbor, MI
- BMB Awards Committee, 2014-2015, MSU
- Current position: postdoctoral fellow, laboratory of Jason Spence, University of

Michigan, Ann Arbor, MI

2016-17 Fang Xie, Ph.D.
- Current position: unknown

2014-17 Alyson Lokken, Ph.D.
- 2016-2017 NIH-NICHD Loan Repayment Award
- 2016 Society for Developmental Biology Travel Award, 2016
- 2016 Best Poster Award, Midwest Society for Developmental Biology Meeting, Ann Arbor, MI
- 2015 Best Poster Award, Michigan Alliance for Reproductive Technologies and Science Conference, Grand Rapids, MI
- Current position: unknown

2010-14 Michael A. Halbisen, Ph.D.
- CIRM Training Grant Recipient 2010-2013, UCSC
- Current Position: Bioinformatics Specialist, MSU

**Assigned Junior Faculty Mentees**

2016- Sophia Lunt, Ph.D., Assistant Professor, BMB
2019- George Mias, Ph.D., Assistant Professor, BMB
2019- Polly Hsu, Ph.D., Assistant Professor, BMB

## 4. Service & Outreach

### Campus Service (MSU)

| | |
|---|---|
| 2020-2022 | Faculty Advisory Committee (BMB) |
| 2020- | Associate Director, Cell and Molecular Biology Graduate Program (NatSci) |
| 2019 | Chair, Strategic Planning Research Subcommittee (NatSci) |
| 2018- | Animal Care Advisory Committee (MSU) |
| 2018-2019 | Strategic Planning Committee (BMB) |
| 2018- | Career-Life Balance Ombud (BMB) |
| 2017- | Advisory Committee, Transgenic and Genome Editing Facility (MSU) |
| 2017-2019 | College Advisory Council (CHM) |
| 2017-2020 | Grievance Committee (CHM) |
| 2017-2019 | Department Seminar Committee (BMB) |
| 2017 | Speaker, Interdepartmental Gene Expression Program, BMS Graduate Recruiting Weekends (BMS) |
| 2016-2017 | Search Committee for Reproductive and Developmental Sciences Program Global Initiative Hires (recruited Aritro Sen and Hanne Hoffman) |
| 2016- | Faculty Mentoring Committee (BMB) |
| 2016-2017 | Organizer, Reproductive & Developmental Sciences 1st Annual Retreat, MSU |
| 2016- | Internal Advisory Committee, Reproductive and Developmental Sciences T32 Training Program |
| 2015-2017 | Elected member, Faculty Advisory Committee, BMB, MSU |
| 2015-2016 | Search Committee for Department Chair, BMB, MSU (recruited Erich Grotewold, OSU) |
| 2015 | Speaker, BMS Graduate Orientation, MSU |
| 2015 | Keynote Speaker, BMS Graduate Retreat, MSU |
| 2015 | Speaker, Classes without Quizzes, MSU |
| 2015 | Co-Founder, Pre-tenure Resource Organization for Promotion & Success, BMB, MSU |
| 2014-2015 | Graduate Exam Committee, BMB, MSU |
| 2014 | Speaker, Reproductive & Developmental Sciences Program, PI Meeting, MSU |
| 2014 | Speaker, Cancer Research in Progress Group, MSU |
| 2014 | Speaker, Genetics Graduate Program, MSU |
| 2014 | Speaker, BMS Graduate Orientation, MSU |

### Campus Service (UCSC)

| | |
|---|---|
| 2014 | Career-Life Balance Talk, Women in Physics, Dept. of Physics, UCSC |
| 2014 | Proposal Review, CIRM Training Grant, UCSC |
| 2013-2014 | Founder & Director, STEM Career-Life Balance Resource Center, UCSC |

2013-2014 Graduate Advising Committee, MCDB, UCSC
2012-14 Executive Committee, Institute for the Biology of Stem Cells
2013 Career Development Talk, STEM Diversity Programs, UCSC
2013 Career Development Talk, Undergrad Research Student Association, UCSC
2012-2013 Faculty Search Committee, MCDB (outcome: recruited Dr. Zhu Wang), UCSC
2012-13 Technical Supervisor, Transgenics Core Facility, UCSC
2011-13 Space and planning committee, MCDB, UCSC
2011 Minority Access to Research Careers Summer Institute (5 lectures + lab), UCSC
2011 Organizer, UCSC Interdivisional Research Retreat, Monte Toyon, CA
2009-11 Organizer, Young Principle Investigator Forum, UCSC
2009-11 Fundraising ($4400.00 raised from donors for department activities), UCSC

**Service Beyond Campus**

2015-2018 Co-organizer, Cold Spring Laboratory Course in Mouse Development, Stem Cells, and Cancer, Cold Spring Harbor, New York
2015 Session Chair, Midwest Society for Dev Bio Meeting, Ann Arbor, MI
2014 Presenter, Science Night, Marble Elementary School, East Lansing, MI
2014 Co-organizer, 2014 Santa Cruz Dev Biol Meeting
2013 Poster Judge, Midwest Society for Developmental Biology Meeting, St. Louis, MO
2013 Session Chair, Northeast Society for Developmental Biology Meeting, Woods Hole, MA
2013 Science Demonstration, Happy Days Day Care (Ages 2-5), Santa Cruz, CA
2012 Organizer & Speaker, Career Workshop, Santa Cruz Dev Biol Meeting
2012 Science Demonstration, Happy Days Day Care (Ages 2-5), Santa Cruz, CA
2010 Speaker, Career Workshop, Santa Cruz Dev Biol Meeting

**Manuscript Review**

*Cell, Cell Research, Cell Reports, Cell Stem Cell, Development, Developmental Biology, Developmental Cell, eLife, EMBO Journal, Experimental Cell Research, Genes & Development, Molecular Reproduction and Development, Nature, Nature Cell Biology, Nature Communications, Reproduction, Science, Scientific Reports, Stem Cell Reports, Stem Cells, Placenta, PLoS Biology, Reproduction, Trends in Cell Biology,*

**Grant Review (*ad hoc*)**

Germany-Israel Science Foundation (1 proposal), Human Frontiers in Science Program (1 proposal), National Institutes of Health (72 proposals), National Science Centre Poland (1 proposal), National Science Foundation (1 proposal), National Sciences and Engineering Research Council of Canada (1 proposal), Swiss National Science Foundation (1 proposal), The Wellcome Trust UK (3 proposals), ZonMW International Stem Cell Research Breakthrough Projects (1 proposal),