Rebecca D. Burdine, Ph.D.

Princeton University
Department of Molecular Biology
Washington Road, M159
Princeton, NJ 08544

Office Phone: (609) 258-7515
E-mail: rburdine@princeton.edu

Education

1997 **Yale University**, New Haven, CT
- Doctoral degree, Cell Biology

1990 **Western Kentucky University**, Bowling Green, KY
- Bachelor of Science degree in Recombinant Gene Technology
- Minor in Chemistry
- Graduate *Summa cum laude*

Research Positions

2020-present **Professor**, Department of Molecular Biology, Princeton University, Princeton NJ
2013-2020 **Associate Professor,** Department of Molecular Biology, Princeton University, Princeton NJ
2003-2013 **Assistant Professor,** Department of Molecular Biology, Princeton University, Princeton NJ

1998-2002 **Post-doctoral Fellow,** Developmental Genetics Program, Skirball Institute of Biomolecular Medicine, New York University School of Medicine, New York, NY
Mentor: Dr. Alexander F. Schier
Topic: Left-right axis formation and patterning in the vertebrate embryo.

1997-1998 **Post-doctoral Fellow,** Department of Genetics, Yale University, New Haven, CT
Mentor: Dr. Michael J. Stern
Topic: FGF signaling in *Caenorhabditis elegans* development

1994-1997 **PhD Student,** Department of Genetics, Yale University, New Haven, CT
Mentor: Dr. Michael J. Stern
Thesis: Analysis of *egl-17* encoded FGF and the role of FGF signaling in *Caenorhabditis elegans* sex myoblast migration

1991-1994 **PhD Student,** Department of Cell Biology and Pathology, Yale University, New Haven, CT
Mentor: Dr. John K. Rose
Topic: Replication of Vesicular Stomatitis Virus From a cDNA Clone

Research Interests

The genetics of left-right axis determination in zebrafish; asymmetric organ morphogenesis; congenital heart defects; Primary Ciliary Dyskinesia; function of cilia in development and disease; cilia and CSF flow in idiopathic scoliosis; RASopathies; Angelman Syndrome; Rare Diseases

Honors and Awards

2024 Elected member of the SDB Academy, Society for Developmental Biology
2024 Clio Hall Award for Contributions to Graduate Student Professional Development at Princeton
2018 Elected Fellow to the American Association for the Advancement of Science (AAAS)
2016-2017 National Academies Education Mentor in the Life Sciences
2013-2014 National Academies Education Fellow in the Life Sciences
2012 Invited Speaker for Yale University Biology Alumni Reunion
2011 Invited Speaker for NICHD National Advisory Meeting as an ARRA Success Story
2003-2006 44th Mallinckrodt Scholar, Edward Mallinckrodt Jr. Foundation
2003-2006 Scientist Development Award, American Heart Association
2001-2002 American Heart Association Postdoctoral Fellowship
1998-2001 Damon Runyon Cancer Research Foundation Fellowship

1997	Selected speaker Yale Graduate Student Research Symposium
1997	Anna Fuller Fund Fellowship in Molecular Oncology
1991-1996	Howard Hughes Medical Institute Predoctoral Fellow
1989	Department of Biology Scholarship, Western Kentucky University
1988	Phi Eta Sigma Honor Society (Induction)
1987-1990	President's Honor List (3.8-4.0 GPA), Western Kentucky University
1987-1990	Western Kentucky University Regents Scholarship
1987	Florence and Basil C. Cole Scholarship, Western Kentucky University

Publications

Gonzalez V, Grant, MG, Suzuki M, Christophers B, Williams JR, and **Burdine RD**. (2024) Cooperation between Nodal and FGF signals regulates zebrafish cardiac cell migration and heart morphogenesis *in revision for Development and submitted to bioRxiv*

Patterson V, Ullah F, Bryant L, Griffin JN, Sidhu A, Saliganan S, Blaile M, Saenz MS, Smith R, Ellingwood S, Grange DK, Hu X, Mireguli M, Luo Y, Shen Y, Mulhern M, Zackai E, Ritter A, Izumi K, Hoefele J, Wagner M, Riedhammer KM, Seitz B, Robin NH, Goodloe D, Mignot C, Keren B, Cox H, Jarvis J, Hempel M, Gibson CF, Mau-Them FT, Vitobello A, Bruel A-L, Sorlin A, Mehta S, Raymond FL, Gilmore K, Powell BC, Weck K, Li C, Vulto-van Silfhout AT, Giacomini T, Mancardi MM, Accogli A, Salpietro V, Zara F, Vora NL, Davis EE, **Burdine R**, Bhoj E (2023) Abrogration of MAP4K4 protein function causes congenital anomalies in humans and zebrafish. *Sci Adv* 9(17):eade0631 PMCID:PMC10132768

Khan N, Cabo R, **Burdine RD**, Tan W-H, Keary CJ, Ochoa-Lubinoff C, Bird LM; STARS Investigators (2023) Health-related quality of life and medication use among individuals with Angelman syndrome. *Qual Life Res* 32(7)2059-2067 PMID:37039911

Menon T, and **Burdine RD**. (2022) A twist in Pitx2 regulation of gut looping. *Dev Cell* 57(21):2445-2446 PMID:36347237

Cheng KC, **Burdine RD**, Dickinson ME, Ekker SC, Lin AY, Kent Lloyd KC, Lutz CM, MacRae CA, Morrison JH, O'Connor D, Postlethwait JH, Rogers CD, Sanchez S, Simpson JH, Talbot WS, Wallace DC, Weimer JM, Bellen HJ. (2022) Promoting validation and cross-phylogenetic integration in model organism research. *Dis Model Mech* 15(9):dmm049600 PMCID:PMC9531892

Maerker M, Getwan M, Dowdle ME, McSheene JC, Gonzalez V, Pelliccia JL, Hamilton DS, Yartseva V, Vejanr C. Tingler M., Minegishi K, Vick P, Giraldez AJ, Hamada H, **Burdine RD**, Sheets MD, Blum M, Schweickert A. (2021) Bicc1 and Dicer regulate left-right patterning through post-transcriptional control of the Nodal-inhibitor Dand5. *Nat Commun* 12(1):5482 PMCID:PMC8446035 (Posted to *bioRxiv* 2020.1.29.924456)

Bird LM, Ochoa-Lubinoff C, Tan W-H, Heimer G, Melmed RD, Rakhit A, Visootsak J, During MJ, Holcroft C, **Burdine RD**, Kolevzon A, and Thibert RL. (2021) The STARS Phase 2 Study: A Randomized Controlled Trial of Gaboxadol in Angelman syndrome. *Neurology* 96(7):e1024-e1035 PMCID:PMC8055330

Willgoss T, Cassater D, Connor S, Krishnan ML, Miller MT, Barbosa CD, Phillips D, McCormack J, Bird LM, **Burdine RD**, Claridge S, Bichell TJ. (2021) Measuring What Matters to Individuals with Angelman Syndrome and Their Families: Development of a Patient-Centered Disease Concept Model. *Child Psychiatry Hum Dev* 52(4): 654-668 PMCID: PMC8238699

Patterson VL and **Burdine RD**. (2020) Swimming toward solutions: Using fish and frogs as models for understanding RASopathies. *Birth Defects Res* 112(10): 749-765 PMCID:PMC7968373

Grimes DT, Patterson VL, Luna-Arvizu G, Schottenfeld-Roames J, Irons ZH, and **Burdine RD**. (2020) Left-right asymmetric heart jogging increases the robustness of dextral heart looping in zebrafish. *Dev Biol* 459(2):79-86 PMID:31758943

Gripp KW, Schill L, Schoyer L, Stronach B, Bennett AM, Blaser S, Brown A, **Burdine R**, Burkitt-Wright E, Castel P, Darilek S, Dias A, Dyer T, Ellis M, Erickson G, Gelb BD, Green T, Gross A, Ho A, Holder J, Inoue S-I, Jelin AC, Kennedy A, Klein R, Kontaridis M, Magoulas P, McConnell D, McCormick F, Neel BG, Prada CE, Rauen KA, Roberts A, Rodriguez-Viciana P, Rosen N, Rumbaugh G, Sablina A, Solman M, Tartaglia M, Thomas A, Timmer WC,

Venkatachalam K, Walsh KS, Wolters PL, Yi J-S, Zenker M, and Ratner N. (2020) The Sixth International RASopathies Symposium: Precision Medicine - From Promise to Practice. *Am J Med Genet A* 182(3):597-606 PMCID:PMC7021559

Patel AL, Yeung E, McGuire S, Wu AY, Toettcher JE, **Burdine RD**, and Shvartsman SY. (2019) Optimizing photoswitchable MEK. *Proc Natl Acad Sci* USA 116(51):25756-25763 PMCID:PMC6926043

Harris A, Siggers P, Corrochano S, Warr N, Sagar D, Grimes DT, Suzuki M, **Burdine RD**, Cong F, Koo BK, Clevers H, Stevant I, Nef S, Wells S, Brauner R, Ben Rhouma B, Belguith N, Eozenou C, Bignon-Topalovic J, Bashamboo A, McElreavey K, Greenfield A. (2018) ZNRF3 functions in mammalian sex determination by inhibiting canonical WNT signaling. *Proc Natl Acad Sci* USA 115(21):5474-5479 PMCID:PMC6003506

Pelliccia JL, Jindal GA, **Burdine RD**. (2017) Gdf3 is required for robust Nodal signaling during germ layer formation and left-right patterning. *Elife* Nov 15, 6. pii:e28635 PMCID:PMC5745080

- *Elife Insight* article 2017;6:e33682
- Featured as Homepage Banner story for the National Science Foundation
- Featured in NIH-NICHD newsblog

Stainier DYR, Raz E, Lawson ND, Ekker SC, **Burdine RD**, Eisen JS, Ingham PW, Schulte-Merker S, Yelon D, Weinstein BM, Mullins MC, Wilson SW, Ramakrishnan L, Amacher SL, Neuhauss SCF, Meng A, Mochizuki N, Panula P, and Moens CB. (2017) Guidelines for morpholino use in zebrafish. *PLoS Genet* 13(10):e1007000 PMCID:PMC5648102

Jindal GA*, Goyal Y*, Humphreys JM, Yeung E, Tian K, Patterson VL, He H, **Burdine RD**, Goldsmith EJ, and Shvartsman SY. (2017) How activating mutations affect MEK1 regulation and function. *J Biol Chem* 292(46):18814-18820 PMCID:PMC5704466 **These authors contributed equally to this study*

- Highlighted in JBC special issue – "Signaling through Space and Time" edited by Henrick Dohlman

Grimes DT and **Burdine RD**. (2017) Left-Right Patterning: Breaking Symmetry to Asymmetric Morphogenesis. *Trends Genet* 33(9):616-628 PMCID:PMC5764106

Grant MG*, Patterson VL*, Grimes DT, and **Burdine RD**. (2017) Modeling Syndromic Heart Defects in Zebrafish. *Curr Top Dev Biol* 124: 1-40 PMID:28335857 **These authors contributed equally to this study*

Goyal Y*, Jindal GA*, Pelliccia JL, Yamaya K, Yeung E, Futran AS, **Burdine RD**, Schupbach T, and Shvartsman SY. (2017) Divergent effects of intrinsically active MEK variants on developmental Ras Signaling. *Nat Genet* 49(3):465-469 PMCID:PMC5621734 **These authors contributed equally to this study*

- Recommended Faculty 1000

Jindal GA*, Goyal Y*, Yamaya K, Futran AS, Kountouridis I, Balgobin CA, Scupbach T, **Burdine RD**, and Shvartsman SY. (2017) In vivo severity ranking of Ras pathway mutations associated with developmental disorders. *Proc Natl Acad Sci* USA 114(3): 510-515 PMCID:PMC5255624 **These authors contributed equally to this study*

Burdine RD and Grimes DT. (2016) Antagonistic interactions in the zebrafish midline prior to the emergence of asymmetric gene expression are important for left-right patterning. *Philos Trans R Soc Lond B Biol Sci* 371 (1710): pii20150402 PMCID:PMC5104502

Grimes DT*, Boswell CW*, Morante NFC*, Henkelman RM, **Burdine RD**, and Ciruna B. (2016) Zebrafish models of idiopathic scoliosis link cerebrospinal fluid flow defects to spine curvature. *Science* 352(6291):1341-4 PMCID:PMC5574193 **These authors contributed equally to this study*

- Recommended Faculty 1000
- Featured in the NIH Director's Blog
- Featured in WIRED magazine
- Featured as one of the top research advances in 2016 by NIH-NICHD

Jaffe KM*, Grimes DT*, Schottenfeld-Roames J*, Werner ME, Ku T-S, Kim SK, Pelliccia JL, Morante NFC, Mitchell BJ, and **Burdine RD**. (2016) *c21orf59* (*kurly*) controls both cilia motility and polarization. *Cell Rep* 14(8):1841-9 PMCID:PMC4775428 **These authors contributed equally to this study*

Jindal GA*, Goyal Y*, **Burdine RD**, Rauen KA, and Shvartsman SY. (2015) RASopathies: unraveling mechanisms with animal models. *Dis Model Mech* 8(8): 769-82. PMCID:PMC4527292 **These authors contributed equally to this study*

Kim CK, Miri A, Leung LC, Berndt A, Mourrain P, Tank DW, and **Burdine RD**. (2014) Prolonged, brain-wide expression of nuclear-localized GCaMP3 for functional circuit mapping. *Front Neural Circuits* 8:138 PMCID:PMC4244806

Hjeij R*, Onoufriadis A*, Watson CM*, Slagle CE*, Klena NT*, Dougherty GW, Kurkowiak M, Loges NT, Diggle CP, Morante NF, Gabriel GC, Lemke KL, Li Y, Pennekamp P, Menchen T, Konert F, Marthin JK, Mans DA, Letteboer SJ, WernerC, Burgoyne T, Westermann C, Rutman A, Carr IM, O'Callaghan C, Moya E, Chung EM, UK10K Consortium, Sheridan E, Neilsen KG, Roepman R, Bartscherer K, **Burdine RD**, Lo CW, Omran H, Mitchison HM. (2014) CCDC151 Mutations Cause Primary Ciliary Dyskinesia by Disruption of the Outer Dynein Arm Docking Complex Formation. *Am J Hum Genet* 95(3):257-274 PMCID:PMC4157146 **These authors contributed equally to this study*

Burdine RD and Caspary T. (2013) Left-right asymmetry: lessons from Cancun. *Development* 140(22):4465-4470 PMCID:PMC3817937

Tarkar A*, Loges NT*, Slagle CE*, Francis, R, Dougherty GW, Tamayo JV, Shook B, Cantino M, Schwartz D, Jahnke C, Olbrich H, Werner C, Raidt J, Pennekamp P, Abouhamed M, Hjeij R, Kohler G, Griese M, Li Y, Lemke K, Klena N, Liu X, Gabriel G, Tobita K, Jaspers M, Morgan LC, Shapiro AJ, Letteboer SJF, Mans DA, Carson JL, Leigh MW, Wolf WE, Chen S, Lucas JS, Onoufriadis A, Plagnol V, Schmidts M, Boldt K, UK10K, Roepman R, Zariwala M, Lo CW, Mitchison HM, Knowles MR, **Burdine RD**, LoTurco J, and Omran H. (2013) DYX1C1 is required for axonemal dynein assembly and ciliary motility. *Nat Genet* 45(9):995-1003 PMCID:PMC23872636 **These authors contributed equally to this study*

- Recommended Faculty 1000
- Featured in NIH-NICHD Newsblog

Park CY, Wong AK, Greene CS, Rowland J, Guan Y, **Burdine RD**, and Troyanskaya O.G. (2013) Functional knowledge transfer for high-accuracy prediction of under-studied biological processes. *PLoS Comput Biol* 9(3):e1002957 PMCID:PMC3597527

Lenhart KB, Holtzman NG, Williams JR, and **Burdine RD**. (2013) Integration of Nodal and BMP signals in the heart requires FoxH1 to create left-right differences in cell migration rates that direct cardiac asymmetry. *PLoS Genetics* 9(1):e1003109 PMCID:PMC3554567

Panizzi JR, Becker-Heck A, Castleman VH, Al-Mutairi D, Liu Y, Loges NT, Pathak N, Austin-Tse C, Sheridan E, Schmidts M, Olbrich H, Werner C, Haffner K, Hellman N, Chodhari R, Gupta A, Kramer-Zucker A, Olale F, **Burdine RD**, Schier AF, O'Callaghan C, Chung EMK, Reinhardt R, Mitchison HM, King SM, Omran H, and Drummond IA. (2012) *CCDC103* mutations cause primary ciliary dyskinesia by disrupting assembly of ciliary dynein arms. *Nat Genet* 44(6):714-9 PMCID:PMC3371652

- Recommended Faculty 1000

Daily J, Nash K, Jinwal U, Golde T, Rogers J, Peters MM, **Burdine RD**, Dickey C, Banko J, and Weeber EJ. (2011) Adenovirus-mediated rescue of the cognitive defects in a mouse model for Angelman Syndrome. *PLoS One* 6(12):e27221 PMCID:PMC3235088

Lenhart KB, Lin SY, Titus TA, Postlethwait JH, and **Burdine RD**. (2011) Two additional midline barriers function with midline lefty1 expression to maintain asymmetric Nodal signaling during left-right axis specification in zebrafish. *Development* 138(20):4405-10 PMCID:PMC3177310

McSheene JC and **Burdine RD**. (2011) Examining the establishment of cellular axes using intrinsic chirality. *Proc Natl Acad Sci USA* 108(30):12191-2 PMCID:PMC3145736

Slagle CE, Aoki T, and **Burdine RD**. (2011) Nodal-dependent mesendoderm specification requires the combinatorial activities of FoxH1 and Eomesodermin. *PLoS Genet* 7(5):e1002072 PMCID:PMC3102743

Fogelgren B*, Lin SY*, Zuo X, Jaffe KM, Park KM, Reichert RJ, Bell PD, **Burdine RD**, and Lipschutz JH. (2011) The exocyst protein Sec10 interacts with polycystin-2 and knockdown causes PKD phenotypes. *PLoS Genet* 7(4):e1001361 PMCID:PMC3072367 **These authors contributed equally to this study*

Sullivan-Brown J, Bisher ME, and **Burdine RD**. (2011) Embedding, serial sectioning and staining of zebrafish embryos using JB-4 resin. *Nat Protoc* 6(1):46-55 PMCID:PMC3122109

Miri A, Daie K, **Burdine RD**, Aksay E, and Tank DW. (2011) Regression-based identification of behavior-encoding neurons during large scale optical imaging of neural activity at cellular resolution. *J. Neurophysiol* 105(2):964-980 PMCID:PMC3059183

Becker-Heck A*, Zohn IE*, Okabe N*, Pollack A*, Lenhart KB, Sullivan-Brown J, McSheene J, Loges NT, Olbrich H, Haeffner K, Fliegauf M, Horvath J, Nielsen KG, Marthin JK, Baktai G, Anderson KV, Geisler R, Niswander L, Omran H, and **Burdine RD**. (2011) The novel coiled-coil domain containing protein CCDC40 is essential for motile cilia function and left-right axis formation. *Nat Genet* 43(1):79-84 PMCID:PMC3132183 **These authors contributed equally to this study*

- Recommended Faculty 1000
- Highlights in News and Views *Nature Genetics*
- Featured NIH-NICHD newsblog

Xu B, Feng X and **Burdine RD**. (2010) Categorical data analysis in experimental biology. *Dev Biol* 348 (1):3-11 PMCID:PMC3021327

Jaffe KM, Thiberge SY, Bisher ME, and **Burdine RD**. (2010) Imaging cilia in zebrafish. *Methods Cell Biol.* 97:415-435 PMID:20719283

Jaffe KM and **Burdine RD**. (2010) More than maintenance? A role for IFT genes in planar cell polarity. *J Am Soc Nephrol* 21(8):1240-1 PMID:20651164

Serluca FC*, Xu B*, Okabe N, Baker K, Lin SY, Sullivan-Brown J, Konieczkowski DJ, Jaffe KM, Bradner J, Fishman M, and **Burdine RD**. (2009) Mutations in zebrafish leucine-rich repeat-containing six-like affect cilia motility and result in pronephric cysts, but have variable effects on left-right patterning. *Development* 136(10):1621-31 PMCID:PMC2673758 **These authors contributed equally to this study*

- Highlighted in *Development - This Issue*

Okabe N, Xu B and **Burdine RD**. (2008) Fluid dynamics in zebrafish Kupffer's vesicle. *Dev Dyn,* 237(12):3602-12 PMCID:PMC2829604

Baker K, Holtzman NG, and **Burdine RD**. (2008) Direct and indirect roles for Nodal signaling in two axis conversions during asymmetric morphogenesis of the zebrafish heart. *Proc Natl Acad Sci USA* 105(37):13924-12929 PMCID:PMC2544555

Weber S, Taylor JC, Winyard P, Baker KF, Sullivan-Brown J, Schild R, Knüppel T, Zurowska AM, Caldas-Alfonso A, Litwin M, Emre S, Ghiggeri GM, Bakkaloglu A, Mehls O, Antignac C, ESCAPE Network, Schaefer F, and **Burdine RD.** (2008) SIX2 and BMP4 mutations associate with anomalous kidney development *J Am Soc Nephrol* 19(5):891-903 PMCID:PMC2386720

- Comment piece on this article in *J Am Soc Nephrol* Editorials

Schoetz EM, **Burdine RD**, Jüelicher F, Steinberg MS, Heisenberg CP, and Foty RA. (2008) Quantitative differences in tissue surface tension influence zebrafish germ layer positioning. *HFSP J* 2(1):42-56 PMCID:PMC2640996

- Article selected for the *Virtual Journal of Biological Physics Research* 15(4), 2008
- Recommended Faculty 1000

Sullivan-Brown J, Schottenfeld J, Okabe N, Hostetter CL, Serluca FC, Thiberge SY, and **Burdine RD.** (2008) Zebrafish mutations affecting cilia motility share similar cystic phenotypes and suggest a mechanism of cyst formation that differs from pkd2 morphants. *Dev Biol* 314(2):261-275 PMCID:PMC2453220

Fan X, Hagdos EG, Xu B, Sias C, Kawakami K, **Burdine RD**, and Dougan ST. (2007) Nodal signals mediate interactions between the extra-embryonic and embryonic tissues in zebrafish. *Dev Biol* 310(2):363-378 PMCID:PMC2044568

Schottenfeld J, Sullivan-Brown J, and **Burdine RD**. (2007) Zebrafish *curly up* encodes a *pkd2* ortholog that restricts left-side-specific expression *southpaw*. *Development* 134(8)**:**1605-1615 PMID:17360770

- Highlighted in *Development - This Issue*

Lin SY and **Burdine RD.** Brain asymmetry: switching from left to right. (2005) *Curr Biol* 15(9):R343-345 PMID:15886094

Dutta S, Aspock G, Dietrich J-E, **Burdine RD**, Schier AF, Westerfield M, and Varga ZM. (2005) *pitx3* defines a Hedgehog regulated equivalence domain for lens and anterior pituitary placode. *Development* 132(7):1579-1590 PMID:15728669

Hostetter CL, Sullivan-Brown JL, and **Burdine RD**. (2003) The Zebrafish Pronephros: A Model for Understanding Cystic Kidney Disease. *Dev Dyn* 228(3):514-522 PMID:14579389

Goodman SJ, Branda CS, Robinson MK, **Burdine RD**, and Stern MJ. (2003) Alternative splicing affecting a novel domain in the *C. elegans* EGL-15 FGF receptor confers functional specificity. *Development* 130(16):3757-3766 PMID:1285392

Prior to Princeton

dela Cruz JM, Bamford RN, **Burdine RD**, Roessler E, Barkovich AJ, Donnai D, Schier AF, and Muenke M. (2002) A loss-of-function mutation in the CFC domain of *TDGF-1* is associated with human forebrain defects. *Human Genetics* 110(5):422-428 PMID:12073012

Concha ML[*], **Burdine RD**[*], Russell C, Schier AF, and Wilson SW. A Nodal signaling pathway regulates the laterality of neuroanatomical asymmetries in the zebrafish forebrain. *Neuron* 28(2):399-409 (2000) PMID:11144351 *[*]These authors contributed equally to this study*

- Highlighted in *Nat Rev Neurosci*

Bamford RN, Roessler E[*], **Burdine RD**[*], Saplakoglu U[*], dela Cruz J, Splitt M, Towbin J, Bowers P, Marino B, Schier AF, Shen MM, Muenke M, and Casey B. (2000) Loss of function mutations in the EGF-CFC gene CRYPTIC are associated with human left-right laterality defects. *Nat Genet* 26(3):365-369 PMID:11062482 *[*]These authors contributed equally to this study*

Burdine RD and Schier AF. (2000) Conserved and divergent mechanisms in left-right axis formation. *Genes Dev* 14(7):763-776 PMID:10766733

Yan Y-T, Gritsman K, Ding J, **Burdine RD**, Corrales JD, Price SM, Talbot WS, Schier AF, Shen MM. (1999) Conserved requirement for *EGF-CFC* genes in vertebrate left-right axis formation. *Genes Dev* 13(19):2527-2537 PMCID:PMC317064

Burdine RD, Branda CS, and Stern MJ. (1998) EGL-17(FGF) expression coordinates the attraction of the migrating sex myoblasts with vulval induction in *C. elegans*. *Development* 125(6):1083-1093 PMID:9463355

Burdine RD, Chen EB, Kwok SF and Stern MJ. (1997) *egl-17* encodes an invertebrate fibroblast growth factor family member required specifically for sex myoblast migration in *Caenorhabditis elegans. Proc Natl Acad Sci* USA 94(6):2433-2437 PMCID:PMC20105

Preprints

Lakhina V, McReynolds M, Grimes DT, Rabinowitz JD, **Burdine RD**, and Murphy CT. (2019) ZIP-5/bZIP transcription factor regulation of folate metabolism is critical for aging axon regeneration. *bioRxiv* 727719

Gonzalez V, Grant, MG, Suzuki M, Christophers B, Williams JR, and Burdine RD. (2024) Cooperation between Nodal and FGF signals regulates zebrafish cardiac cell migration and heart morphogenesis *bioRxiv* 574380

Presentations at Meetings and Public Lectures

GradFUTURES Future Faculty Series	Invited Speaker	2023
American Association of Anatomy, Anatomy Connected – Master Class	Invited Speaker/Cancelled	2023

Gordon Conference on Cilia, Mucus & Mucociliary Interactions	Invited Speaker	2023
75th Yamada Conference – Origin of left-right asymmetry in animals	Selected Speaker	2023
CASS Angelman Conference	Keynote Speaker	2022
12th Structural Birth Defects Meeting	Selected Speaker	2022
EMBO Cilia 2022 in Cologne	Invited Speaker	2022
German Society for Developmental Biology Meeting	Invited Speaker	2022
GradFUTURES Future Faculty Series	Invited Speaker	2022
Angelman Syndrome Foundation Research and Family Conference	Keynote Speaker	2022
The Biology and Physics of Left-Right Patterning UK	Invited Speaker	2022
Angelman Syndrome Foundation Research and Family Conference	Invited Speaker	2021
NIH ORIP Workshop Validation of Animal Models in Biomedical Research	Invited Speaker	2020
Angelman Syndrome Foundation Research and Family Conference	Invited Speaker	2020
2019 ASCB/EMBO Meeting	Invited Speaker	2019
6th International RASopathies Symposium: Precision Medicine	Invited Speaker	2019
8th Strategic Conference of Zebrafish Investigators	Selected Speaker	2019
Angelman UK Family Conference, England	Invited Speaker	2018
13th International Zebrafish Meeting	Invited Speaker	2018
Tokyo 2018 Cell and Developmental Biology Meeting	Invited Speaker	2018
Canadian Angelman Syndrome Society 25th Anniversary Conference	Invited Speaker	2018
Princeton Center for Theoretical Science "Mechanics in Morphogenesis"	Invited Speaker	2018
2017 ASCB/EMBO meeting	Selected Speaker	2017
2017 FASEB SRC: Biology of Cilia and Flagella	Invited Speaker	2017
Angelman Syndrome Foundation Research and Family Conference	Invited Speaker	2017
2017 Neurofibromatosis Conference	Invited Speaker	2017
7th Strategic Conference of Zebrafish Investigators	Selected Speaker	2017
8th Annual Aquatic Models of Human Disease Meeting	Invited Speaker	2017
Pitt Hopkins Research Foundation Symposium	Invited Speaker	2016
University of Georgia Developmental Biology Fall Symposium	Keynote Speaker	2016
Primary Ciliary Dyskinesia Foundation Meeting – "Cilia on the Move"	Invited Speaker	2016
ASSERT Annual Conference	Invited Speaker	2016
Angelman Syndrome Outcomes Measures Meeting, Tampa	Invited Speaker	2016
Society for Developmental Biology, Mid-Atlantic Regional Meeting	Invited Speaker	2016
4th International Angelman Syndrome Scientific Conference	Invited Speaker	2015
The National Academies Summer Institutes on Undergraduate Education	Organizer/Speaker	2015
6th Strategic Conference of Zebrafish Investigators	Selected Speaker	2015
Society for Developmental Biology, Mid-Atlantic Regional Meeting	Invited Speaker	2014
10th NICHD Structural Birth Defects Meeting	Invited Speaker	2014
FASEB Summer Conference on the Biology of Cilia and Flagella	Platform Speaker	2013
Society for Developmental Biology 72nd Annual Meeting: Satellite Symposium "Making and Breaking the Left-right axis"	Invited Speaker	2013
5th Strategic Conference of Zebrafish Investigators	Selected Speaker/Declined	2013
Santa Cruz Developmental Biology Meeting	Invited Speaker	2012
Cilia in Development and Disease	Selected Speaker	2012

FASEB Summer Conference on Polycystic Kidney Disease	Invited Speaker	2011
Willhelm Johannsen Symposium, Copenhagen	Invited Speaker/Declined	2011
Gordon Conference on Cilia, Mucus & Mucociliary Interactions	Invited Speaker	2011
4th Strategic Conference of Zebrafish Investigators	Selected Speaker	2011
National Advisory Child Health and Human Services Council Meeting	Invited Speaker	2011
Society for Developmental Biology 69th Annual Meeting	Selected Speaker	2010
FASEB Summer Conference on the Biology of Cilia and Flagella	Selected Speaker	2010
9th International Zebrafish Development and Genetics	Selected Speaker	2010
Keystone Meeting on Cilia, Signaling and Human Disease	Selected Speaker	2010
7th NICHD Structural Birth Defect Meeting	Invited Speaker	2009
American Society for Human Genetics 59th Annual Meeting	Invited Speaker	2009
Society for Developmental Biology Mid-Atlantic Regional Meeting	Invited Speaker	2009
American Society of Nephrology Renal Week	Invited Speaker	2008
6th Structural Birth Defects Meeting – NICHD	Invited Speaker	2008
Gordon Conference on Developmental Biology	Invited Speaker	2007
5th Structural Birth Defects Meeting – NICHD	Invited Speaker	2007
ISN – Nature Genetics Forefronts Symposium on Nephrogenetics	Invited Speaker	2007
2nd Strategic Conference of Zebrafish Investigators	Selected Speaker	2007
7th International Zebrafish Development and Genetics Meeting	Selected Speaker	2006
Society for Developmental Biology Mid-Atlantic Regional Meeting	Selected Speaker	2006
Society for Developmental Biology Northeast Regional Meeting (Session Co-Chair)	Invited Speaker	2006
Society for Developmental Biology Mid-Atlantic Regional Meeting	Invited Speaker	2005
Neurobiology Retreat, Princeton University	Invited Speaker	2004
3rd Annual Conference on Holoprosencephaly NIH	Invited Speaker	2004
Society for Developmental Biology 62nd Annual Meeting	Selected Speaker	2003
Gordon Conference on Developmental Biology	Selected Speaker	2003
Society for Developmental Biology Northeast Regional Meeting	Selected Speaker	2003
5th International Zebrafish Development and Genetics Meeting	Selected Speaker	2002
Society for Developmental Biology 60th Annual Meeting	Selected Speaker	2001
4th International Zebrafish Development and Genetics Meeting	Selected Speaker	2000
11th International *C. elegans* Meeting	Selected Speaker	1997

Invited Seminars

Harvard University, Developmental and Regenerative Biology Retreat	Seminar	2022
University of Notre Dame, Cell and Development	Seminar	2022
Mt. Sinai School of Medicine, Department of Cell, Developmental and Regenerative Biology	Seminar	2021
MD Anderson Cancer Center, Department of Genetics	Seminar	2021
Rutgers University, Genetics Department	Seminar	2020
University of Florida, Departments of Molecular Genetics and Microbiology & Biology	Seminar	2019
University of Utah, Seminar and T32 Developmental Biology Training Grant Retreat	Seminar	2019
NIBB, Okazaki, Aichi, Japan	Seminar	2018

Penn State at Hershey, Department of Biochemistry and Molecular Biology	Seminar	2017
University Alabama at Birmingham, Department Pharmacology and Toxicology	Seminar	2017
University of Kentucky, Department of Biology	Seminar	2016
Cincinnati Children's Hospital Research Foundation	Seminar	2016
Keynote Speaker, Developmental Biology Training Grant Symposium, Department of Cell and Developmental Biology, University of Pennsylvania	Seminar	2016
Children's Hospital of Pennsylvania, Genes, Genomes, and Pediatric Disease	Seminar	2015
Stony Brook University, Department of Biochemistry and Cell Biology	Seminar	2015
Yale University, Molecular, Cellular and Developmental Biology	Seminar	2013
University of Wisconsin-Madison, Department of Zoology	Seminar	2013
Yale University Alumni Reunion Speaker	Seminar	2012
University of Wisconsin-Madison, Department of Genetics	Seminar	2012
University of Toronto, Department of Cell and Systems Biology	Seminar	2011
University of Iowa, Department of Biology	Seminar	2011
Emory University, Department of Human Genetics	Seminar	2011
Temple University, Department of Biology	Seminar	2010
Kean University, Center of Science and Technology	Seminar	2010
Princeton University, Department of Molecular Biology	Seminar	2010
University of Pennsylvania, Renal Research Conference	Seminar	2010
Queens College, CUNY, Department of Biology	Seminar	2009
Lehigh University, Department of Biological Sciences	Seminar	2009
New York University, Department of Biology - Graduate Student Nominated Speaker	Seminar	2009
Mt. Sinai School of Medicine, Department of Developmental and Regenerative Biology	Seminar	2008
University of Nebraska Medical Center, Department of Genetics, Cell Biology, and Anatomy	Seminar	2008
UMDNJ-Rutgers University, Molecular Biosciences - Graduate Student Association Invited Speaker	Seminar	2008
University of Georgia, Department of Cell Biology	Seminar	2008
McGill University, Department of Human Genetics	Seminar	2007
Skirball Institute, NYU School of Medicine	Seminar	2007
University of Pennsylvania, Center for Molecular Studies in Digestive and Liver Disease	Seminar	2007
Rensselaer Polytechnic Institute, Troy NY	Seminar	2007
BioMaps Short Course on Biological Development, Rutgers University	Seminar	2006
Forsyth Institute, Boston, MA	Seminar	2006
Waksman Institute, Rutgers University	Seminar	2003
Princeton University, Department of Molecular Biology	Seminar	2002
North Carolina State University, Department of Genetics	Seminar	2002
Memorial Sloan-Kettering Cancer Center	Seminar	2002
Institute of Genetic Medicine, Weill-Cornell Medical Center	Seminar	2001
Cincinnati Children's Hospital Medical Center	Seminar	2001

Teaching

Graduate Primer* (graduate), Princeton University	since 2023
*new course developed and offered by Molecular Biology for incoming students starting in 2023	
Mol506 Cell and Developmental Biology (graduate), Princeton University	since 2014
Mol348 Cell and Developmental Biology (undergraduate), Princeton University	since 2011
Instructor, Zebrafish Embryology Course, MBL Wood's Hole	since 2022
Guest lecturer, BIOL0479 Genes and Disease, Middlebury College (Spring & Fall)	2021, 2022
Guest lecturer, University of Georgia	2020
Panel member, McGraw Center, Master Class on Lecturing, Princeton University	2012
Guest lecturer, McGill University, Graduate course: "Animal Models of Human Disease"	2007
Panel member, McGraw Center, Professor 101, Princeton University	2005
Mol507 Cell and Developmental Biology (graduate), Princeton University	2004-2013
Teaching Assistant, EMBO Practical Course: Developmental Genetics	2000
Teaching Assistant, Cell Biology/Histology (medical/graduate)	1997
Department of Cell Biology, Yale University School of Medicine	
Teaching Assistant, AIDS in Society (undergraduate)	1992
Department of Molecular, Cellular, and Developmental Biology, Yale University	
Teaching Assistant, Cell Biology/Histology (medical/graduate)	1991-1994
Department of Cell Biology, Yale University School of Medicine	

University and Departmental Committees and Service

Princeton University, Student Life Committee	2022-2024
Princeton University, Undergraduate Advisor, Butler College	since 2023
Princeton University, Fellow, Butler College	since 2021
Molecular Biology Department, Graduate Committee	since 2021
Molecular Biology Department, Search Officer	since 2018
Princeton University, Institutional Animal Care and Use Committee	since 2013
Vice Chair of Committee	2023-2026
Princeton University, Examinations and Standing Committee	2020-2022
Molecular Biology Department, Undergraduate Committee	2017-2021
	2006-2015
Molecular Biology Department, Undergraduate Department Representative	2017-2021
	2012-2015
	2009-2010
Princeton University, Fellow, Whitman College	2007-2019
Princeton University, Academic Integrity Report Reconciliation Committee	2018-2019
Princeton University, Honor System Review Committee	2017-2018
Princeton University, Council for Teaching and Learning	2016-2018
Princeton University, Committee on Discipline	2013-2016
Princeton University, Council for Science and Technology	2013-2016
Princeton University, Course of Study Committee	2013
Princeton University, Faculty Discussion on Gender and Academic Life at Princeton	2010
Princeton University, Liberal Arts at Princeton Panel for Parents	2010
Princeton University, Women in Science Panel for Undergraduates	2010
Princeton University, Course of Study Committee	2009-2010
Princeton University, Undergraduate Advisor, Whitman College	2007-2018
Molecular Biology Department, Faculty Advisor for the TEM & Histology Facility	2004-2011
Princeton University, Course of Study Committee	2004-2008
Princeton University, Undergraduate Advisor and Fellow, Rockefeller College	2004-2007
Molecular Biology Department, Graduate Fellowship Committee, Head	2003-2008
Molecular Biology Department, Strategic Committee (Faculty Recruiting/Retention)	2003-2004

Service on Extramural Committees, Editorial Boards, Companies and Foundations

Chief Science Officer, Angelman Syndrome Foundation	since 2021
Coalition for the Life Sciences, GSA representative	since 2020
Angelman Community Advisory Board (in partnership with EURORDIS)	since 2020
Board of Directors, Angelman Syndrome Foundation	since 2019
Board of Directors, International Society of Differentiation	2018-2024
Advisory Board for the Zebrafish International Resource Center (ZIRC)	since 2018
Angelman Syndrome Foundation, Science Advisory Council	since 2018 2007-2011
Chair, Steering Committee for the Angelman Syndrome Natural History Study	since 2017
Editorial Board, *Zebrafish*	since 2017
Editorial Board, *Cell Reports*	2012-2023
Board of Directors, Genetics Society of America (GSA)	2019-2021
Editor, Official IZFS newsletter - *News Splash*	2016-2022
Board Member, International Zebrafish Society (IZFS)	2016-2021
Consultant and Clinical Trial Steering Committee for Ovid Therapeutics Inc.	2016-2020
Scientific Advisory Board, Perlara PBC	2017-2019
Pitt Hopkins Syndrome Foundation, Chief Science Officer	2012-2018
Invited Participant for NICHD Scientific Vision Development Workshop	2011
Foundation Angelman Syndrome Therapeutics Australia, Science Advisory Board	2011-2015
NICHD Developmental Biology, Genetics, and Teratology Branch Expert Panel Member	2010
Faculty of 1000, Faculty Member, Developmental Biology Section	2008-2019
Foundation for Angelman Syndrome Therapeutics (FAST), Founding Member and Chief Science Officer	2008-2016
Zebrafish TILLING Consortium Advisory Board	2008-2013
New York University Postdoctoral Council	1999-2002

Study Section Service

NIH, Cardiovascular Differentiation and Development Study Section (Standing Member)	2022-2023
NIH, Cardiovascular Sciences Member Conflict Special Emphasis Panel	2021
NIH, Cardiovascular Differentiation and Development Study Section (Ad Hoc)	2021
NICHD Special Emphasis Panel for T32 Training Grant Applications	2018
NIH, NICHD Initial Review Group, Developmental Biology Subcommittee (Standing Member)	2012-2018
Proposal Review NSF IOS Animal Development & Evo/Devo Panel	2015
NSF IOS Animal Development & Evo/Devo Panel	2014
Special Emphasis Panel for Zebrafish Research Tools and Techniques	2012
NSF IOS Animal Development Panel	2012
NICHD Developmental Basis of Structural Birth Defects P01	2011
NICHD Special Emphasis Panel for Program Project Review (2 sessions)	2010
NIDDK PKD Research and Translational Core Centers	2010
NICHD Developmental Biology Subcommittee (Ad Hoc)	2009
Subject Matter Expert, Stage I Review Panel for NIH Challenge Grants	2009
NIGMS Special Emphasis Panel - MBRS Support of Competitive Research (Ad Hoc)	2007
Member NIDDK Centers for Polycystic Kidney Disease Research Review (Ad Hoc)	2005

Other Service Activities

PKD Foundation Grant Review Panel	2023
NIH Workshop on Validation of Animal Models and Tools for Biomedical Research, Co-chair Zebrafish Session	2020
National Center for Faculty Development and Diversity, Coach for Faculty Success Program	2017-2020
External Reviewer, Developmental Biology Training Grant, U.Penn	2016
Society for Developmental Biology Mid-Atlantic meeting: Presentation Judge	2010

Society for Developmental Biology Mid-Atlantic Meeting: Presentation Judge	2009
International Zebrafish Development and Genetics Meeting: Poster Judge	2006
Society for Developmental Biology Mid-Atlantic Meeting: Poster Judge	2006
Annual Biomedical Research Conference for Minority Students (ABRCMS) Princeton University and Departmental Representative Society for Developmental Biology Poster Judge	2004
Annual Biomedical Research Conference for Minority Students (ABRCMS) Princeton University and Departmental Representative Society for Developmental Biology Poster Judge	2003

Conference Organization

Society for Developmental Biology, Mid-Atlantic Meeting Co-organizer	2023
Co-Chair FASEB SRC The Biology of Cilia and Flagella	2017-2022
Co-Chair (11th) and Steering Committee (12th and 13th) for the NICHD Structural Birth Defects Meeting	2017-2022
12th International Zebrafish Development and Genetics Conference Organizing Committee; and TAGC Community Representative	2016
National Academies Summer Institute on Undergraduate Education Organizer (held at Princeton University)	2015
Society for Developmental Biology, Mid-Atlantic Meeting Co-organizer	2015
Strategic Conference for Zebrafish Investigators, Organizing Committee	2015
International Zebrafish Development and Genetics Conference, Chair	2014
11th FASEB Summer Conference on the Biology of Cilia and Flagella, Chair	2013
MidAtlantic Regional Zebrafish (MARZ) Meeting, Co-organizer	2013
Strategic Conference for Zebrafish Investigators, Organizing Committee	2013
10th International Zebrafish Development and Genetics Conference Session Chair - Cilia, Cell and Tissue Polarity	2012
Society for Developmental Biology, Mid-Atlantic Meeting Co-organizer	2007
Molecular Biology Departmental Retreat Chair	2004
Molecular Biology Departmental Retreat Vice-Chair	2003

Professional Associations

International Society of Differentiation (ISD)	since 2018
International Zebrafish Society (IZFS)	since 2015
Genetics Society of America (GSA)	since 2014
Society for Neuroscience (SFN)	since 2011
American Association for the Advancement of Science (AAAS)	since 2010
Society for Developmental Biology (SDB)	since 1999
American Society for Cell Biology (ASCB)	since 1995
American Society of Nephrology (ASN)	2008-2015
American Physiological Society (APS)	2006-2009
American Association of Undergraduate Professors (AAUP)	2003-2011

Professional Development

National Center for Faculty Diversity and Development Pathfinders Program	2017
The National Academies Summer Institutes on Undergraduate Education, Facilitator	2016
National Center for Faculty Diversity and Development Faculty Success Program	2016
The National Academies Summer Institutes on Undergraduate Education, Leader Princeton U.	2015
The National Academies Summer Institutes on Undergraduate Education, Attendee	2014
The National Academies Summer Institutes on Undergraduate Education, Participant	2013
Public Voices Thought Leadership Project, Princeton University, Participant	2011-2012
Oasis II STEM Leadership Program, WISEM Rutgers University, Participant	2009
Professional Grant Development Workshop, Grant Training Center, Participant	2007

Burroughs Wellcome Fund/HHMI Course in Scientific Management, Participant 2002

Educational Outreach

Speed Mentoring Table, 12th Structural Birth Defects Meeting 2022
Career Development Workshop, FASEB SRC: Biology of Cilia and Flagella 2017
Mentoring Roundtable Leader, TAGC Meeting, Genetics Society of American 2016
Science Day Demonstration, Riverside Elementary School, Princeton New Jersey 2015-2018
Panel Discussion for Women in Science, Mathematics, and Engineering, Princeton University 2010
NICHD Scholars Summer Workshop Lecture on Mentoring 2010
Princeton Molecular Biology Outreach Program, TIGER Talk 2005
Princeton Molecular Biology Outreach Program, Summer Workshop Lecture 2003-2011

Reviewing Activities 2003-2023

BBA-Gene Structure and Expression, BBSRC, Bioessays, BMC Developmental Biology, Cell, Cell Reports, Cell Research, Cellular Physiology and Biochemistry, Cold Spring Harbor Protocols, Critical Reviews in Oral and Biological Medicine, Current Biology, Development, Development Biology, Developmental Cell, Developmental Dynamics, Disease Models and Mechanisms, E-Life, Evolution and Development, FEBS Journal, Frontiers in Bioscience, Genes & Development, Genesis, Human Molecular Genetics, Israel Science Foundation, JEZ Part B: Molecular and Developmental Evolution, Journal of the American Society of Nephrology (JASN), Kidney International, Mechanisms of Development, National Science Foundation, Nature Communications, Nature Cell Biology, Nature Genetics, Nature Reviews Neuroscience, PLoS Genetics, PLoS One, Proceeding of the National Academy (PNAS), Progress in Biophysics and Molecular Biology, Science, Swiss National Science Foundation, Trends in Genetics, U.S.-Israel Binational Science Foundation, Wellcome Trust, Zebrafish

Mentoring

Postdoctoral Researchers

Triveni Menon, Princeton University 2021-2023
Victoria Patterson, Princeton University 2015-2022
- Teaching Award, Princeton University
- Lecturer, University of York starting in 2022

Daniel Grimes, Princeton University 2013 - 2018
- AHA Postdoctoral Fellowship
- NJSCR Award
- K99 Pathway to Independence Grant
- Assistant Professor, University of Oregon starting in 2019

Kimberly M. Jaffe, Princeton University 2008-2011
- AHA Postdoctoral Fellowship
- NRSA Postdoctoral Fellowship
- Current: Senior Vice President, Head of Business Development & Strategy BlueSphere Bio

Arul Subramanian, Princeton University 2006-2007
- Current: Associate Project Scientist with Tom Schilling, U.C. Irvine

Noriko Okabe Tanaka, Princeton University 2005-2008
- Current: Family leave, Japan

Graduate Students

Billie Reneker, Princeton University 2022 - current
Cullen Young, Princeton University 2022 - current
Vanessa Gonzalez, Princeton University 2020 - current
Marvin Cortez, Princeton University (Co-advisor – Danelle Devenport) 2019 - current
Aleena Patel, Princeton University (Co-advisor – Stanislav Shvartsman) 2016-2021
- Current: Postdoctoral Researcher with Alistair Boettiger, Stanford

Meagan Grant, Princeton University 2013-2019
- AAAS Science and Technology Policy Fellow, Cardiovascular Disease Research and Prevention
- Current: Scientific Advisor, Scientific Strategy and innovation, National Heart, Lung, and Blood Institute

José Pelliccia, Princeton University 2013-2018
- Current: Postdoctoral Fellow with Mary Mullins, U.Penn

Granton Jindal, Princeton University (Co-advisor – Stanislav Shvartsman) 2013-2017
- NSF Predoctoral Fellow
- Current: Postdoctoral Fellow with Emma Farley, UCSD

Nicholas F.C. Morante, Princeton University 2013-2017
- Postdoctoral Fellow with Jeremy Reiter, UCSF

Denver Jn. Baptiste, Princeton University 2011-2012
- M.A. degree in Molecular Biology
- M.S. degree in Divinity, Andrews University
- Ph.D Howard University
- Current: Lecturer, Stevens Institute of Technology

Jason McSheene, Princeton University 2009-2015
- UNCF/Merck Thesis Award
- Current: Associate Scientific Director – Meditech Media

Jessica Rowland Williams, Princeton University 2009-2015
- NSF Predoctoral Fellow
- Postdoctoral Fellow with Frances Eun-Hyung Lee at Emory University
- Current: Director, Every Learner Everywhere
- Current: Nexus Fellow, The Equity Lab

Kari Baker Lenhart, Princeton University 2006-2011
- AHA Predoctoral Fellow
- NJCCR Predoctoral Award
- Postdoctoral fellow with Steve DiNardo, University of Pennsylvania
- Current: Assistant Professor, Dept of Biology, Drexel University

J. Andrew Miri, Princeton University (Primary advisor – David Tank) 2006-2011
- NSF Predoctoral Fellow
- Postdoctoral fellow with Tom Jessell, Columbia University
- Current: Assistant Professor, Dept of Neurobiology, Northwestern University

Christopher Slagle, Princeton University 2005-2011
- NJCCR Predoctoral Award
- Postdoctoral fellow with Frank Conlon, University of North Carolina-Chapel Hill
- Current: Manager, Clinical Regulatory Writing at AstraZeneca

Shin-Yi Lin, Princeton University 2004-2011
- NSF Predoctoral Fellow
- Christine Mirzayan Graduate Policy Fellowship
- Postdoctoral fellow with Ron Ellis, UMDNJ-Rowan University
- Eagleton Science and Politics Fellowship
- Current: Program Manager NJ Department of Human Services, Medicaid Policy Office

Bo Xu, Princeton University 2004-2010
- Current: Head of BaaS Data Science at Stripe

Jodi Schottenfeld-Roames, Princeton University 2003-2008
- Postdoctoral fellow with Amin Ghabrial, University of Pennsylvania
- Visiting Assistant Professor, Cell & Developmental Biology Swarthmore College
- Current: Lecturer in Molecular Biology, Princeton University

Jessica Sullivan-Brown, Princeton University 2003-2008
- NJCCR Predoctoral Award
- Princeton Honorific Fellowship
- Postdoctoral fellow with Bob Goldstein, University of North Carolina-Chapel Hill
- Current: Associate Professor, West Chester University, PA

Undergraduate Research and Thesis Students

Rajveer Kaur, Princeton University since 2024
Veronica Arciprete, Princeton University since 2023
Zoe Evans, Princeton University since 2023
Katerina Kourpas, Princeton University since 2023
Adrienne Chang, Princeton University 2022-2023
- Departmental Thesis Prize for Excellence

Maryam Kamal, Princeton University 2022-2023
Tyler G. Bruno, Princeton University 2021-2022
- Current: M.D. Candidate, UT Memphis Medical School

Ashley Chang, Princeton University 2020-2021
- M.D. Candidate, University of Pennsylvania Perelman School of Medicine

Jena J. Yun, Princeton University 2020-2021
Juliet V. McGowen, Princeton University 2019-2020
- Departmental Thesis Prize for Excellence

William D. Steidl, Princeton University 2019-2020
- M.Phil, Music University of Cambridge
- Current: M.D. Candidate, Ichan School of Medicine at Mt. Sinai

Kerri Davidson, Princeton University 2018-2019
- Current: M.D., Ph.D. Candidate, Yale University School of Medicine

Sally Lee, Princeton University 2017-2019
- Current: M.D. Candidate at David Geffen School of Medicine at UCLA

Noah Han, Princeton University 2017-2018
- Current: Research Coordinator for Alice Chen-Plotkin, U. Penn

Emily Pauls, Princeton University 2017-2018
- Current: M.D. Program Wayne State University School of Medicine

Owen Ayers, Princeton University 2017
- Current: Associate at Avalere Health

Joshua Morrison, Princeton University 2016-2017
- Current: Ph.D. Candidate in Immunology and Microbial Pathogenesis at Weill Cornell Medicine

Briana Christophers, Princeton University 2014-2017
- Current: M.D./Ph.D. Tri-Institutional program, Cornell/Sloan Kettering/Rockefeller

Eunice Lee, Princeton University 2014-2016
- Current: MD/PhD Program, Columbia University

Anna Niroomand, Princeton University 2012-2016
- Current: M.D. Program, Rutgers University

Courtney Balgobin, Princeton University 2014-2015
- M.S. Physiology and Biophysics Stony Brook University
- M.D. Stony Brook School of Medicine
- Current: Resident Physician, Montefiore Health System, NY

Hope Xu, Princeton University 2013-2015
- M.D. Icahn School of Medicine at Mount Sinai
- Current: Plastic Surgery Practice, Chicago IL

Kyeong Rin Kwak, Princeton University 2013-2014
- J.D. New York University School of Law
- Current: Associate Fenwick & West

Kristina Ali, Princeton University 2013-2014
- M.S. Biochemistry and Molecular Biology, Georgetown University
- Current: M.D. Candidate at Geisel School of Medicine at Dartmouth, NH

Marcus Wong, Princeton University 2012-2013
- M.D. Texas A&M Health Science Center
- Current: Neurosurgery Resident, Houston Methodist, TX

Thomas An, Princeton University 2012-2013
- M.D. Vanderbilt School of Medicine

- Current: Chief Resident – Interventional Radiology, Massachusetts General Hospital, MA

Korleki (Candice) Akiti, Princeton University 2012-2013
- Ph.D. Harvard University

Stephanie Thomas, Princeton University 2011-2012
- M.D. University of Cincinnati College of Medicine
- Current: Resident Physician Cincinnati Children's Hospital Medical Center

Stephen Park, Princeton University 2011-2012
- M.D. Keck School of Medicine of University Southern California
- Current: Resident Physician, Surgery

Serafine Chen, Ecology, Evolutionary Biology Department, Princeton University 2010-2012
- Senior Thesis Fund Award from the Dean of the Faculty
- D.D.S. University California at San Francisco
- Current: Dental practice San Francisco

Rafael Klein-Cloud, Princeton University 2010-2011
- Senior Thesis Fund Award from the Dean of the Faculty
- M.D. State University of New York Downstate Health Sciences University
- Current: Resident Physician, General Surgery

Stephanie Ivins, Princeton University 2009-2010
- M.S. Colorado State University
- M.D. University of Iowa Carver College of Medicine
- Current: Sleep Medicine Fellowship, Northwestern University

Amanda Agyemang, Princeton University 2007-2008
- NIH Academy Research Fellow 2008-2010
- M.D. Albert Einstein College of Medicine
- Current: Assistant Professor in Pediatric Allergy and Immunology at the Jaffe Food Allergy Institute, Mt. Sinai Health System

Stuart Carter, Princeton University 2007-2008
- NJCCR Summer Undergraduate Fellowship
- Departmental Thesis Prize for Excellence
- Technician, Department of Defense, Walter Reed Army Institute 2009
- M.D. University of Pennsylvania
- Current: Ophthalmology practice Allentown, PA

Tse-Shuen (Jade) Ku, Princeton University 2005-2007
- Departmental Thesis Prize for Excellence
- Princeton Project 55 Public Health Fellow Trinitas Hospital
- MS Masters in Medical Science, Drexel University College of Medicine
- M.D. UMDNJ-New Jersey Medical School
- Current: Pulmonology/Intensivist at Integris Health, Baptist Medical Center

David J. Konieczkowski, Princeton University 2004-2006
- Departmental Thesis Prize for Excellence
- Goldwater Scholar
- Rotary Scholarship to Oxford University
- M.St., Roman History, University of Oxford
- M.D./Ph.D. program; Harvard University
- Current: Assistant Professor, Radiation Oncology, Ohio State University Comprehensive Cancer Center

Maija Garnaas, Princeton University 2005-2006
- IRTA Postbaccalaureate Fellowship, NIH/NCI
- Technician, Medical College of Wisconsin
- Ph.D. Harvard University
- Current: Associate Director, Oncology Research Moderna

Jonathan Rosen, Princeton University 2004-2005
- Departmental Thesis Prize for Excellence
- Ph.D. Harvard University
- Current: Associate Director, Research JDRF International

Heather Robbins Bleacher, Princeton University 2003-2004
- M.D. Tufts University School of Medicine
- Current: Family Practice, CO

Summer Program Undergraduate Students

Marvin Cortez, University of California, Irvine 2016
- Current: Ph.D. candidate, Department of Molecular Biology, Princeton University

Lindsay Bierwert, Hartwick College, NY 2013
- M.S. New York Chiropractic College

Corbin Darling, Morehouse College, GA 2010
- Current: M.D. Candidate Pittsburgh School of Medicine

Albreia Hall, Fort Valley State University, GA 2010
- M.S. Georgia State University
- D.M.D. Augusta University

Samuel Joseph Endicott, William Jewell College, MI 2009
- Ph.D Yale University
- Current: Research Investigator University of Michigan

Matthew Howard, University of North Carolina - Chapel Hill 2008
- Current: Owner/CEO Howard-Martin Capital Group

Travonne Gross, Morehouse College, GA 2008
- Current: Research Study Coordinator U.S. Department of Veteran's Affairs

Monica Gutierrez, Fairleigh Dickinson University 2006

James McCullough, Colorado University 2006
- M.D. University of Colorado School of Medicine

Tiffany Lonchena, Ohio University 2005
- M.D. Temple University School of Medicine

Katya Kupava, Brandeis University 2003
- M.D. Hofstra University

Princeton Summer Undergraduate Research Experience (PSURE) Students

Allison Ibarra, University of California Riverside, CA 2014

Denarius Frazier, Morehouse College, GA 2012

High School Volunteers

Anna Niroomand, The Lawrenceville School, Lawrenceville, NJ 2011-2012
- Princeton University Class of 2016

Abigail Girgis, Stuart Country Day School of the Sacred Heart, Princeton, NJ 2012

Participation on Ph.D. Thesis Committees

Emily Singer, Princeton University, Michael Levine, mentor since 2024

Katherine Novak, Princeton University, Coleen Murphy, mentor since 2024

Outside thesis examiner, Catarina Bota, Lisbon University, Susana Lopez, mentor 2023

Ben Law, Princeton University, Michelle Chan, Mentor since 2023

Anqi Zhou, Princeton University, Michelle Chan, Mentor since 2023

Venecia Valdez, Princeton University, Sabine Petry, Mentor since 2022

Denay Richards, Princeton University, Danelle Devenport, mentor since 2022

Shiyi Zhou, Princeton University, Coleen Murphy, mentor 2019-2023

Rivkah Brown, Princeton University, Coleen Murphy, mentor 2020-2023

Katherine E. Goodwin, Princeton University, Celeste Nelson, mentor 2019-2022

Katherine Hill, Princeton University, Jean Schwarzbauer, mentor 2017-2022

Kimberly Box, Princeton University, Danelle Devenport, mentor 2017-2019

Zhuo (Rory) Li, Princeton University, Yibin Kang, mentor 2014-2018

Julia Wittes, Princeton University, Trudi Schupbach, mentor	2013-2018
Rezma Shrestha, Princeton University, Danelle Devenport, mentor	2013-2017
Evan Abbaszadeh, Princeton University, Elizabeth Gavis, mentor	2012-2016
Lauren Anllo, Princeton University, Trudi Schupbach, mentor	2012-2016
Outside Thesis reader for Simone Superina, University of Toronto, Brian Ciruna, mentor	2014
Charles Miller, Princeton University, Jean Schwarzbauer, mentor	2013-2014
Halley Mellor, Princeton University, Jonathan Eggenschwiler, mentor	2010-2014
Outside Thesis reader for Michelle M. Collins, McGill University, Aimee Ryan, mentor	2013
Outside Thesis reader for Stephen Lewellis, New York University, Holger Knaut, mentor	2013
Praveena Joseph-de Saram, Princeton University, Michael Berry, mentor	2008-2013
Desmond Brown (M.D./Ph.D.), Princeton University, Jonathan Eggenschwiler, mentor	2009-2012
Danielle Snowflack, Princeton University, Elizabeth Gavis, mentor	2007-2012
Outside Thesis reader for Jade Zheng Li, Yale University, Zhaoxia Sun, mentor	2011
Kimberly Poole, Princeton University, Jonathan Eggenschwiler, mentor	2007-2011
Ryan Norman, Princeton University, Jonathan Eggenschwiler, mentor	2005-2010
Dorothy Lerit, Princeton University, Elizabeth Gavis, mentor	2006-2010
Agata Becalska, Princeton University, Elizabeth Gavis, mentor	2005-2009
Jillian Brechbiel, Princeton University, Elizabeth Gavis, mentor	2004-2008
Arhyon Cho, Princeton University, Jonathan Eggenschwiler, mentor	2004-2007
Chris Meighan, Princeton University, Jean Schwarzbauer, mentor	2003-2007

Grant Support

Active:

Source: Princeton Catalysis Initiative **ID:**
Title: Establishment of a Zebrafish-Based target ID and Drug Screening Platform for IBD Indication
Total Project Period: 1/1/24 – 12/31/24
Award: **$125,000 DC $125,000 TC**
Major Goal: To establish a zebrafish model for IBD and develop imaging strategies to facilitate large scale drug screens in partnership with Bristol Meyers Squibb.

Source: New Jersey Commission on Cancer Research **ID:** COCR24PRG007
Title: The role of Nodal Signaling in promoting partial EMT migration
Total Project Period: 7/1/23-6/30/25
Award: **$200,00 DC $200,000 TC**
Major Goal: To assess the transcriptional responses to Nodal signaling that drive cell migration during the development of cardiac asymmetry.

Source: FASEB c/o University of Georgia (PI: K. Lechtreck) **ID:** 1R13 HD098854-02
Title: FASEB SRC on the Biology of Cilia and Flagella
Total Project Period: 8/1/19-7/31/24
Current Award: **$30,000 DC $30,000 TC**
Major Goal: This is a conference grant awarded to the Federation of American Societies for Experimental Biology c/o University of Georgia as part of NIH's Support for Conferences and Scientific Meetings. The goal is to provide support for junior investigators to attend the 2019, 2021 and 2023 FASEB Science Research Conferences on the Biology of Cilia and Flagella. Dr. Burdine is listed as a co-PI, but there is no salary or individual laboratory research support for Dr. Burdine on this grant.

Completed:

Source: NIH R01 AR071486 **ID:** 1R01 AR071486-03
Title: Cilia Function In Spine Development and Disease
Total Project Period: 6/1/17 – 3/31/22
Current Period Award: **$325,905 DC $456,471 TC****

Major Goals: Idiopathic Scoliosis (IS) refers to lateral curvatures of the spine for which there is no known cause. We recently found that defects in cerebrospinal fluid flow cause IS in zebrafish. We will use this model to explore why these defects cause spinal curves, laying the groundwork for developing therapeutic strategies to stop, or prevent, IS.
****Note:** This award now includes added funding under the NIH Research Supplements to Promote Diversity in Health-Related Research Program for Ellen LeMosy of Augusta University beginning 5/1/18 (TC:$105,905).

Source: New Jersey Health Foundation, Inc. **ID:** PC 34-19
Title: Invadosomes in Collective Cell Migration in Zebrafish
Total Project Period: 2/15/19 – 2/15/20
Current Period Award: $35,000 DC $35,000 TC
Major Goals: Cancer metastasis to locations beyond the site of the primary tumor is the major cause of death in patients. We will identify changes in gene expression that occur within migrating heart cells of the zebrafish in response to Nodal signaling through RNA sequencing. This work will generate gene lists that we will further explore as we characterize podosome formation and function in zebrafish. We will also compare our gene lists to those publically available for metastatic cancer cells to identify genes similarly regulated in our cells and the cancer cells.

Source: New Jersey Health Foundation, Inc. **ID:** PC 59-20
Title: Identification of MAP4K4 interaction partners in development
Total Project Period: 2/17/20-2/16/21
Current Award: **$35,000 DC $35,000 TC**
Major Goals: It is known that disease gene MAP4K4 functions in cell migration by regulating cell adhesion proteins, but outside this role, few proteins that interact with MAP4K4 are known. In this proposal, we will use tools we have generated to study MAP4K4 in zebrafish to expand our knowledge of how MAP4K4 functions in development by exploring the effect of disease-associated mutations on known protein-protein interactions and by identifying new partners that work with MAP4K4 using proximity labeling approaches.

Source: NIH, *renewal* (PI: Shvartsman) **ID:** 2R01 GM086537-08
Title: Activating mutations in MEK: from molecules to morphologies
Total Project Period: 9/4/15 – 8/31/20*
Current Period Award: **$65,677 DC $106,396 TC**
Major Goals: Our work will contribute to fundamental understanding of developmental abnormalities caused by the germline mutations within the highly conserved RAS/MAPK signaling pathway. By combining quantitative studies with purified components and developing embryos, we will establish how the same set of mutations affect the biochemical activity and tissue-level functions of MEK, a core component of the RAS/MAPK pathway. The award amounts shown above represent the Burdine budget only.
***Note:** this grant was awarded a no-cost extension through 8/31/20.

Source: NIH **ID:** 1R03 HD092694
Title: Rapid Quantitative Analysis of Genomic Variants Underlying CHD in RASopathies
Total project period: 07/01/2017 – 06/30/2019
Total project award: **$150,000 DC $261,500 TC**
Major Goals: This is a collaborative proposal with Dr. Elizabeth Bhoj at the Children's Hospital of Philadelphia. She will provide sequencing information from a patent cohort with RASopathy symptoms, but without known RASopathy mutations. The Burdine lab will utilize out established zebrafish system to analyze these mutations to assess their potential pathogenicity.

Source: NIH *renewal* (PI: Burdine) **ID:** R01 HD 048584=
Title: Connecting Polycystin Signaling to Asymmetric Nodal Expression
Total Project Period: 7/1/12 – 4/30/17
Total Project Award: **$1,037,500 DC $1,636,208 TC**

Major Goals: The goal of this project is to determine how signaling downstream of the Polycystin complex establishes asymmetric *nodal* expression. Ultimately this work will identify signaling networks participating in the establishment of the LR axis and will provide new targets to investigate as factors underlying CHD.

Source: NSF **ID:** IOS-1147123
Title: The roles of FoxH1 and TGF beta signaling in directing asymmetric cardiac morphogenesis
Total Project Period: 1/1/12 – 1/31/15 (includes 1 month pre-award)
Total Project Award: **$302,402 DC $450,823 TC**
Major Goals: Our long term goal is to understand the signals and processes involved in asymmetric morphogenesis of the vertebrate heart. The objective of this application is to determine how Nodal-dependent functions of the transcriptional factor FoxH1 contribute to differences in cell migration rates along the cardiac L/R axis and how Nodal-independent functions of FoxH1 regulate Bmp signaling in the zebrafish heart.

Source: NIH **ID:** R01 HD048584
Title: Analysis of zebrafish *npt* and *swt* mutants in left-right patterning
Total Project Period: 2/15/07 – 6/30/12
Total Project Award: **$1,057,397 DC $1,628,650 TC**
Major Goals: This proposal focuses on the molecular functions of npt and swt in left-right patterning. This grant also strives to better understand left-right morphogenesis of the developing heart.

Source: NIH **ID:** R01 HD048584-03S1
Title: ARRA: Analysis of Zebrafish *npt* and *swt* mutants in left-right patterning
Total Project Period: 9/30/09 – 9/29/11
Total Project Award: **$41,5000 DC $63,765 TC**
Major Goals: This supplement provides funding to purchase additional needed equipment and support a graduate student conducting research on the parent R01.

Source: NIH Minority Supplement **ID:** 126-6282
Title: Analysis of Zebrafish *npt* and *swt* mutants in left-right patterning
Total Project Period: 7/1/07 – 8/31/08
Total Project Award: **$19,075 DC $30, 137 TC**
Major Goals: To provide supplies and summer salary for Amanda Ageymang to conduct research in the Burdine Lab on goals outlined in the parent R01**.**

Source: Johnson and Johnson **ID:** 126-2173
Title: Imaging cilia motility and fluid flow in zebrafish Kupffer's vesicle
Total Project Period: 7/1/2007 – 6/30/2008
Total Project Award: **$50,000 DC $50,000 TC**
Major Goals: This proposal aims to develop and utilize state-of-the art imaging techniques to visualize cilia movement and fluid flow in the ciliated organizer of asymmetry in zebrafish.

Source: Polycystic Kidney Disease Foundation **ID**: 117A2R(yr1)/117B2R(yr2)
Title: The role of zebrafish *switch hitter* in pronephric cyst formation
Total Project Period: 1/1/06 – 6/30/08
Total Project Award: **$116,279 DC $130,000 TC**
Major Goals: The proposal strives to further analyze the role of *swt* in pronephric cyst formation in to enhance our understanding of cystic kidney disease. This project has particular emphasis on finding *swt* interacting partners and developing antibodies to *swt*.

Source: NJ State Comm. on Cancer Research **ID:** 07-1065-CCR-E0
Title: Analysis of the Zebrafish Cystic Kidney Mutant *switch hitter*
Total Project Period: 7/1/06 – 6/30/07
Total Project Award: **$45,000 DC $49,500 TC**

Major Goals: In this proposal we aim to characterize *switch hitter*, a mutation which causes renal cysts in the embryonic Zebrafish larvae. This project has particular emphasis on determining the characteristics of cyst formation that mimic oncogenesis in other tissues including proliferation and dedifferentiation.

Source: Edward Mallinckrodt Jr. Foundation Mallinckrodt Scholar Program
Titlle: Molecular and Genetic Analysis of Left-Right Patterning and Kidney Defects in the Zebrafish *nonpartisan* Mutant
Total Project Period: 10/1/03 – 9/30/06
Total Project Award: **$210,000 DC $210,000 TC**
Major Goals: The study proposed in this scholar award is to clone the *npt* gene in order to understand the molecular basis of its function. The study will also extend our understanding of LR patterning and the genetic basis for birth defects, such as congenital heart disease and autosomal recessive and dominant polycystic kidney disease.

Source: AHA Scientist Development Grant **ID:** 0335395T
Title: Molecular and Genetic Analysis of Left-Right Patterning and Positioning of the Zebrafish Heart
Total Project Period: 7/1/03 - 6/30/06
Total Project Award: **$ 163,635 DC $180,000 TC**
Major Goals: The major goals of this project are to clone and characterize the *npt* gene.

Source: Polycystic Kidney Disease Foundation **ID:** 79A2R(yr1)/79A2R(yr2)
Title: Molecular and Genetic Analysis of the Zebrafish Cystic Mutant, *ping-pong*
Total Project Period: 1/1/04 – 12/31/05
Total Project Award: **$118,182 DC $130,000 TC**
Major Goal: The goal of this project is to understand the role of *ping-pong* in kidney cyst formation.

Source: NJ State Comm. on Cancer Research **ID:** 04-2405-CCR-E
Title: Analysis of the Zebrafish Cystic Kidney Mutant *switch hitter*
Total Project Period: 6/1/04 - 11/30/05
Total Project Award: **$ 45,000 DC $ 49,500 TC**
Major Goal: This research on how kidney cysts are formed, and how this process relates to neoplasia.