

DAVID M. PARICHY, PH.D.

Department of Biology
University of Virginia
Physical Life Sciences Building, 90 Geldard Drive
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cell 434.996.3543
office 434.982.6162

Education:

B.A. Biology 1991, Reed College

Thesis, 'Offspring Fitness in Unpredictable Environments: The Evolution of Random Plasticity in Maternal Investment'

Advisor, Dr. Robert H. Kaplan

Ph.D. Population Biology 1997, University of California at Davis

Dissertation, 'Evolution of Developmental Mechanisms Underlying Salamander Pigment Patterns'

Fields of oral exam: Development, Ecology, Evolution, Statistics, General Population Biology

Graduate advisors: Dr. Carol A. Erickson, Dr. H. Bradley Shaffer

Post-doctoral 1997–2000, Genetics and genomics, Washington University Medical School, St. Louis

Advisor: Dr. Stephen L. Johnson

Professional Positions:

1989 Field Assistant to Dr. Robert H. Kaplan, Republic of Korea
1989–1991 Research Associate with Dr. R. H. Kaplan, Reed College
1990 TA Population Biology, Reed College
1991 TA Introductory Biology, UC Davis
1994, 1995 TA Embryology, UC Davis
1995 Center for Population Biology Faculty RAship, UC Davis
1995 RA with Dr. Carol A. Erickson, UC Davis
1996 RA with Dr. H. Bradley Shaffer, UC Davis
1996 PGR (Associate-in) Embryology, UC Davis
1997–2000 Postdoctoral Fellow with Dr. Stephen L. Johnson, Washington University Medical School
1999–2000 Research Instructor, Washington University Medical School
1998–2004 Assistant Professor, Section of Integrative Biology and Section of Molecular, Cell and Developmental Biology, Institute for Cellular and Molecular Biology, University of Texas at Austin (on leave September 1998 – September 2000)
2004–2005 Associate Professor, Section of Integrative Biology and Section of Molecular, Cell and Developmental Biology, Institute for Cellular and Molecular Biology, University of Texas at Austin
2005–2006 Assistant Professor, Department of Biology, University of Washington, Seattle
2006–2009 Associate Professor, Department of Biology, University of Washington, Seattle
2005–2017 Affiliate Member, Institute for Stem Cell and Regenerative Medicine, University of Washington
2009–2017 Professor, Department of Biology, University of Washington, Seattle
2017–present Pratt-Ivy Foundation Distinguished Professor of Morphogenesis, Department of Biology, University of Virginia, Charlottesville
2017–present Affiliate Professor, Department of Cell Biology, University of Virginia, Charlottesville

Grants (PI Parichy, unless otherwise indicated):

2000–2004 NSF IBN 007783 "Evolutionary genetics of *Danio* pigment pattern development" (\$537,000 total costs).
2001–2006 NIH R01 GM062182 "Developmental bases for pigment cell variation in *Danio*" (\$1,125,000 total costs; \$150,000 annual direct costs).
2001–2006 NIH R01 HD040165 "Developmental genetics of zebrafish metamorphosis" (\$1,312,500 total costs; \$175,000 annual direct costs).
2002–2007 NIH R24 RR16344 "Genomic resources for model amphibians" (\$1,292,000; PI, SR Voss, Colorado State University; Co-PI, Parichy, no direct costs to UW)

2005–2009	NSF IOB 0444517, IOB 0541733 “Evolutionary convergence and parallelism in zebrafish pigment pattern development” (\$800,000 total costs; \$130,719 annual direct costs)
2005–2007	NIH R03 HD050201 “Zebrafish normal table of post-embryonic development” (\$155,541 total costs; \$50,000 annual direct costs)
2006–2010	NIH R01 GM062182 “Developmental bases for pigment cell variation in <i>Danio</i> ” (\$1,182,480 total costs; \$195,000 annual direct costs)
2006–2007	Royalty Research Fund #3727, University of Washington, “Genetic and phenotypic analysis of zebrafish dwarf mutant <i>shortstop</i> ” (\$33,630 total costs)
2007–2011	NIH P01 GM078195 “Regulation of metal ion homeostasis by channel kinases” (A. Ryazanov PI, A. Scharenberg co-PI; 5 years; \$650,805 total costs subcontract to Parichy)
2009–2011	NIH R01 GM062182-09S1 “Technician and qPCR instrumentation supplement for NIH R01 GM062182” (\$246,635 total costs).
2011–2015	NIH R01 GM062182 “Developmental bases for pigment cell variation in <i>Danio</i> ” (\$1,293,600 total costs; \$210,000 annual direct costs).
2011–2016	NIH R01 GM096906 “Melanocyte boundary interactions in development and neoplasia” (\$1,265,891 total costs; \$190,000 annual direct costs; in no-cost extension).
2013–2015	NIH R03 HD074787 “Genetic control of post-embryonic developmental progression in zebrafish” (\$154,500 total costs; \$50,000 annual direct costs)
2014–2018	NIH R01 GM111233 “Pigmentary model for thyroid hormone actions on stem cell lineages” (\$1,243,071 total costs; \$190,000–\$207,000 annual direct costs)
2015–2019	NIH R01 GM096906 “Cellular interactions underlying establishment and implementation of zebrafish adult pigment pattern” (\$1,378,057 total costs; \$197,716–\$365,259 annual direct costs).
2016–2017	Royalty Research Fund A112414, University of Washington, “Establishing zebrafish scale development as a new model system for morphogenesis of ossified tissues” (\$35,350).
2016–2017	NIH R01 GM096906 “Equipment supplement request: cellular interactions underlying establishment and implementation of zebrafish adult pigment pattern” (\$132,522 total costs).
2016–2020	NIH R24 OD021479 “Developing regeneration resources for a model amphibian” (PI, SR Voss, U. Kentucky, \$829,155 total costs; Co-PI, Parichy, \$165,831 annual total costs; \$107,334 annual direct costs).
2017–2022	NIH NIGMS R35 GM122471 MIRA “Development and homeostasis of adult phenotypes” (\$2,807,532 total costs; \$354,180–382,980 annual direct costs).
2018	NIH NIGMS R35 GM122471 MIRA “Development and homeostasis of adult phenotypes” administrative supplement for purchase of Illumina NextSeq550 sequencing platform (\$224,956 total costs).

Articles:

1. [Parichy DM](#), Kaplan RH. 1992. Developmental consequences of tail injury on the oriental fire-bellied toad, *Bombina orientalis*. *Copeia* 1992:129–137.
2. [Parichy DM](#), Kaplan RH. 1992. Maternal effects on offspring growth and development depend on environmental quality in the frog, *Bombina orientalis*. *Oecologia* 91:579–586.
3. [Parichy DM](#), Kaplan RH. 1995. Maternal investment and developmental plasticity: functional consequences for locomotor performance of hatchling frog larvae. *Functional Ecology* 9:606–617.
4. [Parichy DM](#). 1996. Pigment patterns of larval salamanders (Ambystomatidae, Salamandridae): the role of the lateral line sensory system and the evolution of pattern-forming mechanisms. *Developmental Biology* 175:265–282. PMID: 8626032
5. [Parichy DM](#). 1996. When neural crest and placodes collide: interactions between melanophores and the lateral lines that generate stripes in the salamander *Ambystoma tigrinum tigrinum* (Ambystomatidae). *Developmental Biology* 175:283–300. PMID: 8626033
6. [Parichy DM](#). 1996. Salamander pigment patterns: how can they be used to study developmental mechanisms and their evolutionary transformation? *International Journal of Developmental Biology* 40:871–884. PMID: 8877461

7. [Parichy DM](#). 1998. Experimental analysis of character coupling across a complex life cycle: pigment pattern metamorphosis in the tiger salamander, *Ambystoma tigrinum tigrinum*. **Journal of Morphology** 237:53–67. PMID: [9642792](#)
8. [Parichy DM](#), Stigson M, Voss SR. 1999. Genetic analysis of *steel* and the PG-M/versican-encoding gene *AxPG* as candidate genes for the *white (d)* pigmentation mutant in the salamander *Ambystoma mexicanum*. **Development, Genes and Evolution** 209:349–356. PMID: [10370116](#)
9. [Parichy DM](#), Rawls JF, Whitfield T, Pratt SJ, Johnson SL. 1999. Zebrafish *sparse* corresponds to an orthologue of *c-kit* and is required for the morphogenesis of a subpopulation of melanocytes, but is not essential for hematopoiesis or primordial germ cell development. **Development** 126:3425–3436. PMID: [10393121](#)
10. [Parichy DM](#), Ransom DG, Paw B, Zon L, Johnson SL. 2000. An orthologue of the *kit*-related gene *fms* is required for development of neural crest–derived xanthophores and a subpopulation of adult melanocytes in the zebrafish, *Danio rerio*. **Development** 127:3031–3044. PMID: [10862741](#)
11. [Parichy DM](#), Mellgren EM, Rawls JF, Lopes SS, Kelsh RN, Johnson SL. 2000. Mutational analysis of *endothelin receptor b1 (rose)* during neural crest and pigment pattern development in the zebrafish, *Danio rerio*. **Developmental Biology** 227:294–306. PMID: [11071756](#)
12. [Parichy DM](#). 2001. Homology and evolutionary novelty in the deployment of extracellular matrix molecules during pigment pattern formation in salamanders (*Taricha*, *Ambystoma*). **Molecular and Developmental Evolution (Journal of Experimental Zoology)** 291:13–24. PMID: [11335913](#)
13. [Parichy DM](#), Johnson SL. 2001. Zebrafish hybrids suggest genetic mechanisms of pigment pattern diversification in *Danio*. **Development, Genes and Evolution** 211:319–328. PMID: [11466528](#)
14. Voss SR, Smith JJ, Gardiner D, [Parichy DM](#). 2001. Conserved vertebrate chromosome segments in the large salamander genome. **Genetics** 158:735–746. PMID: [11404337](#)
15. [Parichy DM](#), Turner JM^s. 2003. Temporal and cellular requirements for *fms* signaling during zebrafish adult pigment pattern development. **Development** 130:817–833. PMID: [12538511](#)
16. [Parichy DM](#), Turner JM^s. 2003. Zebrafish *puma* mutant decouples pigment pattern and somatic metamorphosis. **Developmental Biology** 256:242–257. PMID: [12679100](#)
17. [Parichy DM](#), Turner JM^s, Parker NB. 2003. Essential role for *puma* in development of post-embryonic neural crest-derived cells in zebrafish. **Developmental Biology** 256:221–241. PMID: [12679099](#)
18. Engeszer RE, Ryan MJ, [Parichy DM](#). 2004. Learned social preference in zebrafish. **Current Biology** 14:881–884. PMID: [15186744](#)
[Comment by: Peichel CL. 2004. Social behavior: how do fish find their shoal mate? *Current Biology* 14:R503–504]
19. Putta, S, Smith JJ, Walker J, Rondet M, Weisrock DW, Monaghan J, Samuels AK, Kump K, King DC, Maness NJ, Habermann B, Tanaka E, Bryant SV, Gardiner DM, [Parichy DM](#), Voss SR. 2004. From biomedicine to natural history research: EST resources for ambystomatid salamanders. **BMC Genomics** 5:54. PMID: [15310388](#)
20. Quigley IK, Turner JM^s, Nuckels RJ^s, Manuel JL, Budi EH^s, MacDonald EL, [Parichy DM](#). 2004. Pigment pattern evolution by differential deployment of neural crest and post-embryonic melanophore lineages in *Danio* fishes. **Development** 131:6053–6069. PMID: [15537688](#)
21. Quigley IK, Roberts R^s, Manuel JL, Nuckels RJ^s, Herrington E, MacDonald EL, [Parichy DM](#). 2005. Evolutionary diversification of pigment pattern in *Danio* fishes: differential *fms* dependence and stripe loss in *D. albolineatus*. **Development** 132:89–104. PMID: [15563521](#)
22. Elizondo MR, Arduini BL, Paulsen J, Macdonald EL, Sabel JL, Henion PD, Cornell RA, [Parichy DM](#). 2005. Defective skeletogenesis with kidney stone formation in dwarf zebrafish mutant for *trpm7*. **Current Biology** 15:667–671. PMID: [15823540](#)
23. Smith JJ, Kump DK, Walker JA, [Parichy DM](#), Voss SR. 2005. A comprehensive EST linkage map for tiger salamander and Mexican axolotl: enabling gene mapping and comparative genomics in *Ambystoma*. **Genetics** 171:1161–1171. PMID: [16079226](#)
24. Engeszer RE, Patterson LB, Rao AA, [Parichy DM](#). 2007. Zebrafish in the wild: a review of natural history and new notes from the field. **Zebrafish** 4:21–40. PMID: [18041940](#)
25. Mills MG, Nuckels RJ^s, [Parichy DM](#). 2007. Deconstructing evolution of adult phenotypes: genetic analyses of *kit* reveal homology and evolutionary novelty during adult pigment pattern development of *Danio* fishes. **Development** 134:1081–1090. PMID: [17287252](#)

26. Engeszer RE, Alberici da Barbiano L[§], Ryan MJ, [Parichy DM](#). 2007. Timing and plasticity of shoaling behaviour in the zebrafish, *Danio rerio*. ***Animal Behaviour*** 74:1269–1275. [PMC2211725](#)
27. Engeszer RE, Wang G, Ryan MJ, [Parichy DM](#). 2008. Sex-specific perceptual space for a vertebrate basal social aggregative behavior. ***Proc. Natl Acad. Sci. USA*** 105:929–933. [PMC2242707](#)
28. Budi EH[§], Patterson LB, [Parichy DM](#). 2008. Embryonic requirements for Erbb signaling in neural crest development and adult pigment pattern formation. ***Development*** 135:2603–2614. [PMC2704560](#)
29. Hultman KA, Budi EH[§], Teasley DC, Gottleib AY, [Parichy DM](#), Johnson SL. 2009. Defects in ErbB-dependent establishment of adult melanocyte stem cells reveals independent origins for embryonic and regeneration melanocytes. ***PLoS Genetics*** 5:e1000544. [PMC2699538](#)
30. [Parichy DM](#), Elizondo MR, Mills MG, Gordon TN[§], Engeszer RE. 2009. Normal table of post-embryonic zebrafish development: staging by externally visible anatomy of the living fish. ***Developmental Dynamics*** 238:2975–3015. [PMC3030279](#)
31. Lang MR, Gordon TN[§], Patterson LB, Johnson SL, [Parichy DM](#). 2009. Basonuclin-2 functions in adult pigment pattern formation and female fertility. ***PLoS Genetics*** 5:e1000744. [PMC2776513](#)
32. Christiansen HE, Lang MR, Pace JM, [Parichy DM](#). 2009. Critical roles for *col27a1a* and *col27a1b* in notochord morphogenesis, vertebral mineralization and post-embryonic axial growth. ***PLoS One*** 4e: 8481. [PMC2794549](#)
33. Curran K, Lister JA, Kunkel GR, Prendergast, [Parichy DM](#), Raible DW. 2010. Interplay between Foxd3 and Mitf regulate cell fate plasticity in the zebrafish neural crest. ***Developmental Biology*** 344:107–118. [PMC2909359](#)
34. Larson TA, Gordon TN[§], Lau HE[§], [Parichy DM](#). 2010. Defects in oligodendrocyte and Schwann cell development, pigment pattern, and craniofacial morphology in *puma* mutant zebrafish having an alpha tubulin mutation. ***Developmental Biology*** 346:296–309. [PMC2957186](#)
35. Elizondo MR, Budi EH[§], [Parichy DM](#). 2010. *trpm7* regulation of in vivo cation homeostasis and kidney function involves stanniocalcin1 and *fgf23*. ***Endocrinology*** 151:5700–5709. [PMC2999483](#)
36. Budi EH[§], Patterson LB, [Parichy DM](#). 2011. Post-embryonic nerve-associated precursors to adult pigment cells: genetic requirements and dynamics of morphogenesis and differentiation. ***PLoS Genetics*** 7:e1002044. [PMC3098192](#)
[Perspective: Kelsh RN, Barsh GS. 2011. A nervous origin for fish stripes. *PLoS Genetics* 7:e1002081]
37. Roeselers G, Mittge EK, Stevens WZ, [Parichy DM](#), Cavanaugh CM, Guillemin K, Rawls JF. 2011. Evidence for a core gut microbiota in the zebrafish. ***ISME J*** 5:1595–1608. [PMC3176511](#)
38. Eom DS, Inouye S, Patterson LB, Gordon TG[§], Kondo S, Watanabe M, [Parichy DM](#). 2012. Melanophore migration and survival during zebrafish adult pigment stripe development require the immunoglobulin superfamily adhesion molecule, *Igsf11*. ***PLoS Genetics*** 8:e1002899. [PMC3420941](#)
[Perspective: Kelsh RN. 2013. Spotting a role for an Ig superfamily member in pigment pattern formation. *Pigment Cell and Melanoma Research* 26:161–162]
39. McMenamin SK, Minchin JEN, Gordon TN[§], Rawls JF, [Parichy DM](#). 2013. Dwarfism and increased adiposity in the growth hormone 1 mutant zebrafish *vizzini*. ***Endocrinology*** 154:1476–1487. [PMC3602633](#)
40. Patterson LB, [Parichy DM](#). 2013. Interactions with iridophores and the tissue environment required for patterning melanophores and xanthophores during zebrafish adult pigment stripe formation. ***PLoS Genetics*** 9:e1003561. [PMC3667786](#)
[Perspectives: How the (Zebra)fish got its stripes. *Cell* 154:709, 2013; News and Views: Kondo S, Watanabe M. 2014. Black, yellow or silver: who leads skin pattern formation. *Pigment Cell Melanoma Res* doi: 10.1111/pcmr.12328]
41. Hamada H, Watanabe M, Lau HE[§], Nishida T, Hasegawa T, [Parichy DM](#), Kondo S. 2014. Involvement of Delta–Notch signaling in zebrafish adult stripe patterning. ***Development*** 141:1–7. [PMC3879813](#)
[Perspective: Goda M, Kelsh RN, Hashimoto H. 2014. Taking striping up a notch. *Pigment Cell and Melanoma Research* 27:688–689]
42. Inouye S, Kondo S, [Parichy DM](#)^{*}, Watanabe S^{*}. 2014. Tetraspanin-3c requirement for pigment cell interactions and boundary formation in zebrafish adult pigment stripes. 2013. ***Pigment Cell and Melanoma Research*** 27:190–200. [PMC3988474](#) ^{*}Co-corresponding authors.
[Editorial: Arnheiter H, Kelsh, RN, Bosenberg M. 2014. Stripes, dots and *dali*. *Pigment Cell and Melanoma Research* 154:709, 2013]

43. McMenamin SK, Bain EJ, McCann AE, Patterson LB, Eom DS, Waller ZP[§], Hamill JC[§], Kuhlman JA, Eisen JS, [Parichy DM](#). 2014. Thyroid hormone-dependent adult pigment cell lineage and pattern in zebrafish. **Science** 345:1358–1361. [PMC4211621](#)
[Editorial: Purnell BA. 2014. Origin of fish pigment cell pattern. *Sci. Signaling* 7:ec256.]
44. Patterson LB, Bain EJ, [Parichy DM](#). 2014. Pigment cell interactions and differential xanthophore recruitment underlying zebrafish stripe reiteration and *Danio* pattern evolution. **Nature Communications** 5:6299. [PMC4224114](#)
45. Eom DS, Bain EJ, Patterson LB, Grout ME[§], [Parichy DM](#). 2015. Long-distance communication by specialized cellular projections during adult pigment pattern development and evolution. **eLife** doi: [10.7554/eLife.12401](#). [PMC4764569](#)
[Perspective: McGowan KA, Barsh GS. 2016. How the zebrafish got its stripes. *eLife* doi:10.7554/eLife.14239; recommended as “exceptional” by F1000Prime]
46. McMenamin SK, Chandless M[§], [Parichy DM](#). 2016. Working with post-embryonic zebrafish. **Methods in Cell Biology** 134:587–607.
47. Woodcock MR, Vaiugn-Wbolfe J, Elias A, Kump, DK, Kendall KD, Timoshevskaya N, Timoshevskiy V, Perrt DW, Smith JJ, Spiewak JE, [Parichy DM](#)*, Voss SR*. 2017. Identification of mutant genes and introgressed tiger salamander DNA in the laboratory axolotl, *Ambystoma mexicanum*. **Scientific Reports** 7:6. PMID: 28127056.
48. Eom DS, [Parichy DM](#). 2017. A macrophage relay for long distance signaling during post-embryonic tissue remodeling. **Science** 355:1317–1320. doi:[10.1126/science.aal2745](#).
[Perspectives: Guillemins M. 2017. Macrophage, a long distance middleman. *Science* 355:1258–1259; Kornberg TB. 2017. Macrophages help cells connect to pattern zebrafish stripes. *Developmental Cell* 40:520–521; Martins A. 2017. The people behind the papers; Dae Seok Eom & David Parichy. *The Node*, April 7; Offord C. 2017. Macrophages physically relay signals between cell types. *The Scientist*, May 1.]
49. Hur M, Gistelinc CA, Huber P, Lee J, Thompson MH, Monstad-Rios AT, Watson CJ, McMenamin, SK, Willaert A, [Parichy DM](#), Coucke P, Kwon RY. 2017. microCT-based skeletal phenomics in zebrafish reveals virtues of deep phenotyping at the whole-organism scale. **eLife** 6:e26014. [PMC5606849](#)
50. Aman AJ, Fulbright AN, [Parichy DM](#). 2018. Wnt/β-catenin regulates an ancient signaling network during zebrafish scale development. **eLife** [10.7554/eLife.37001](#)
[News: Wu KJ. 2018. Combing through the fishy origins of human hair [Smithsonian.com](#); Samarrai F. 2018. The ancient armor of fish—scales—provide clues to hair, feather development. *UVA Today*. Insight: Brunsdon H, Patton EE. 2018. Patterning: Fishing for Ancestry. *eLife* 7:e39524; Gaid N, 13 Aug 2018, “Whales, scales and moons — July’s best science images” [nature.com](#)]
51. Spiewak JE, Bain EJ, Liu J, Kou K, Patterson LB, Kou K[§], Sturiale SL[§], Diba P, Eisen JS, Braasch I, Ganz J, [Parichy DM](#). Evolution of endothelin signaling and diversification of adult pigment pattern in *Danio* fishes. **PLoS Genetics**, in press. [bioRxiv 363879](#)
- Salis P, Lorin T, Lewis V, Rey C, Marcionetti A, Escande M-L, Toux N, Besseau L, Salamin N, Sémon M, [Parichy DM](#), Volf J-N, Laudet V. Developmental and comparative transcriptomic identification of iridophore contribution to white barring in clownfish. Submitted.
 - Patterson LB, Spiewak JE, Coe MM, Lewis VM, Aman AJ, Nishizaku MT, Kou KE, McCluskey BM, [Parichy DM](#). Adult pigment pattern diversification across *Danio* species: roles for Kit and Csf1r signaling and new metrics of analyses. In preparation
- * co-corresponding authors; § undergraduate researcher or started in lab as undergraduate researcher

Invited articles, book chapters, and reports:

1. [Parichy DM](#), Shaffer HB, Mangel M. 1992. Heterochrony as a unifying theme in evolution and development. **Evolution** 46:1252–1254.
2. Reedy MV, [Parichy DM](#), Erickson CA, Mason K, Frost-Mason SK. 1998. “Regulation of melanoblast migration and differentiation.” Chapter 5, in: **The Pigmentary System and its Disorders** (Nordland JJ, Boissy RE, Hearing VJ, King RA, Ortonne JP, Eds.). Oxford.
3. [Parichy DM](#). 2001. “Pigment patterns of ectothermic vertebrates: heterochronic vs. non-heterochronic models for pigment pattern evolution.” In: **Beyond Heterochrony** (Zelditch M, Ed.). Wiley.
4. Voss SR, [Parichy DM](#). 2001. Salamander genome project. **Axolotl Newsletter** Issue 28.

5. Quigley IK, Parichy DM. 2002. Pigment pattern formation in zebrafish: a model for developmental genetics and the evolution of form. *Microsc. Res. Tech* 58:442–455. PMID: 12242701
6. Parichy DM. 2003. Pigment patterns: fish in stripes and spots. *Current Biology* 13:R947–R950. PMID: 14680649
7. Brainerd E, Brakefield P, Crawford D, Emlen D, Feder M, Haag E, Hanken J, Koehl M, Kaufman T, Nijhout F, Parichy D, Peichel C, True J, West-Eberhard M-J, Wheeler D, Wray G, Zera A. 2004. An integrative developmental biology workshop report. National Science Foundation, Division of Integrative and Organismal Biology, [NSF document number idbws001](#).
8. Parichy DM. 2005. "Variation and developmental biology: prospects for the future." Chapter 19, in: **Variation: A Hierarchical Examination of a Central Concept in Biology** (Hallgrimsson B, Hall BK, Eds.). Academic Press.
9. Kocher TD (organizer), Jeffery WR, Parichy DM, Peichel CL, Streelman JT, Thorgaard GH. 2005. Roundtable discussion: Fish models for studying adaptive evolution. *Zebrafish* 2:147–156. PMID: 18248189
10. Parichy DM, Reedy MV, Erickson CA. 2006. "Regulation of melanoblast migration and differentiation." Chapter 5, in: **The Pigmentary System and its Disorders, 2nd Ed.** (Nordland JJ, Boissy RE, Hearing VJ, King RA, Ortonne JP, Eds.). Oxford.
11. Parichy DM. 2006. Evolution of danio pigment pattern development. *Heredity* 97:200–210. PMID: 16835593
12. Parichy DM. 2007. Homology and the evolution of novelty during danio pigment pattern development. **Molecular and Developmental Evolution (Journal of Experimental Zoology)**. 3-8:578–590. PMID: 17094081
13. Kelsh RN, Parichy DM. 2007. "Pigmentation." In: **Fish Larval Physiology** (Finn RN, Kapoor, BG, Eds.). Science Publishers Inc.
14. Streelman JT, Peichel C, Parichy DM. 2007. Developmental genetics of adaptation in fishes: the case for novelty. *Annual Review of Ecology, Evolution, and Systematics* 38:655–682.
15. Ekker SC, Parichy DM, Cheng KC. 2008. Research implications of pigment biology in zebrafish: A roundtable discussion. *Zebrafish* 5:233–235. PMID: 19133820
16. Parichy DM. 2009. Animal pigment pattern: an integrative model for studying the development, evolution, and regeneration of form. *Seminars in Cell and Developmental Biology* 20:63–64. PMID: 19146966
17. McMennamin SK, Parichy DM. 2012. Metamorphosis in teleosts. *Current Topics in Cell and Developmental Biology* 103:128–165. PMID: 23347518
18. Parichy DM, Spiewak JE. 2014. Origins of adult pigmentation: developmental diversity in pigment stem cells and lineages and implications for pattern evolution. *Pigment Cell and Melanoma Research* 28:31–50. [PMC4276524](#)
19. Parichy DM. 2015. Advancing biology through a deeper understanding of zebrafish ecology and evolution. *eLife* 4:05636. PMID: 25807087
20. Parichy DM. 2016. *News and views*: The gar is a fish...is a bird...is a mammal? *Nature Genetics* 48:344–345.
21. Patterson LB, Parichy DM. 2018. *Preview*: Melanophores tune out the noise to make stripes. *Developmental Cell* 45:544–545.
- Patterson LB, Parichy DM. Short and long range signals during vertebrate pigment pattern formation. *Annual Review of Genetics*. In preparation.

Coverage by popular press:

1. Zebrafish can express color preferences. *United Press International, The Washington Times*. May 24, 2004.
2. All patterns great and small. *Science News*, 178:28, 2010.
3. Birds Do It, Bees Do It, Even Zebrafish Do It — Just Too Little — Species Is Prized for Use in Genetic Studies. *The Wall Street Journal*. January 13, 2012.

Awards and Fellowships:

1988–1991 Commendations for Excellence in Scholarship, Reed College

1991–1994 NSF Predoctoral Fellowship
 1991 Phi Beta Kappa
 1991 Ellen Knowlton Johnson Scholarship, Reed College
 1991 Class of 1921 Award, Reed College
 1993 Center for Population Biology Graduate Research Grant, UC Davis
 1994 Graduate Research Award, UC Davis
 1994 Grant-in-Aid of Research, Sigma Xi
 1994, 1997 Travel grants, Pan American Society for Pigment Cell Research
 1994–1995 Jastro-Shields Graduate Research Scholarship, UC Davis
 1994–1995 Center for Population Biology Graduate Fellowship, UC Davis
 1995–1997 NSF Dissertation Improvement Grant (IBN-9423116; \$14,000)
 1995 Phi Beta Kappa Graduate Scholarship, UC Davis
 1996, 1997 ARCS Foundation Graduate Scholarships, UC Davis
 1996 Honorable Mention, Best Student Presentation, Society for Developmental Biology Annual Meeting
 1997 Merton Love Award for best dissertation in ecology and evolution, UC Davis
 1997–1999 NSF–Sloan Postdoctoral Fellowship in Molecular Evolution (DBI-9750006, \$80,000)
 1997–2000 NIH Postdoctoral Fellowship (HD08490-01; award declined for NSF)
 2001–2004 Institute for Cellular and Molecular Biology Fellowships, UT Austin
 2001, 2002 Reeder Centennial Fellowships in Systematic and Evolutionary Biology, UT Austin

Professional Service (grants):

2002, June NIH Study Section CDF-5, Ad hoc member
 2002, Nov NIH Study Section ZRG1 SSS-Y, Ad hoc member
 2002, Nov NIH Study Section F05 CDF-IRG, Ad hoc member
 2003, Feb NIH Study Section F05 CDF-IRG, Ad hoc member
 2003, June NIH Study Section F05 CDF-IRG, Ad hoc member
 2003, June NIH Study Section ZRG1 CDF-4, Ad hoc member
 2004, Feb NIH Study Section DEV2, Ad hoc member
 2004, July NIH Study Section ZRG1 F05, Ad hoc member
 2005, March NIH Study Section PAR Genetic resources for zebrafish, Ad hoc member
 2005, March NIH Study Section SSDB, Ad hoc member
 2005, Oct NSF Animal Development and Evolution of Development Panel
 2006, Feb NIH Study Section SSDB, Ad hoc member
 2007, July NIH Study Section ZNS1 SRB-M (50), Ad hoc member
 2008, June NIH Study Section ZHD1 DSR-Z (DE) 1, Ad hoc member
 2008, June NIH Study Section ZAR1 MLB-G (M1) NIAMS Building Interdisciplinary Research Team, Ad hoc
 2010 NSF Animal Development and Evolution of Development Panel
 2007–2010 NIH Study Section DEV1, Regular member (three panels annually)
 2012, March NIH Study Section ZRG1 MOSS-B (04), Ad hoc member
 2012, June NIH Study Section GVE, Ad hoc, mail-in reviewer
 2015, Feb NIH CSR Application Comparison Pilot Study
 2016, May Science Technology Policy Institute, reviewer of NIH Director’s New Innovator Award Program
 2016, Oct NIH ZHD1 DRG-D (57) K99/R00, Chair
 2017, Feb NIH ZHD1 DSR-G (02) K99/R00, Chair
 2017, Feb NIH ZRG1 BCMB-A (51) TR01 mail-in reviewer
 2000–present External grant reviews: NSF (20+ ad hoc); Austrian Science Fund FWF (1); German–Israeli Foundation for Scientific Research and Development (1); Keck Foundation (1); Konrad Lorenz Institute für Evolutions und Kognitionsforschung (1); Netherlands Organization for Scientific Research (2); New Zealand Genesis Oncology Trust (1); Agence National de la Recherche, France (2); US Air Force Office of Scientific Research (1); US Army Research Office, Life Sciences Division (1); Boehringer Ingelheim Fonds Foundation for Basic Research (1)

Professional Service (manuscript reviews, editorial, other):

2005–present External reviewer promotion and tenure (9)
2006–2008 Advisory board, *Ambystoma* Genetic Stock Center, Lexington KY
2007 Guest Editor, *Seminars in Cell and Developmental Biology* “Development of Pigment Cells and Pigment Pattern”
2008 Guest Editor, *Zebrafish* “Pigment Biology”
2009–present Editorial Board, *Pigment Cell and Melanoma Research*
2012–present Associate Editor, *Genetics*
2014–present Guest Editor, Ad hoc, *PLoS Genetics*
2012 External consultant, Developmental Biology Faculty Search Committee, Reed College
2014 Organizer, Northwest Regional Developmental Biology Meeting, Friday Harbor Labs
2014 Session Chair, Zebrafish Development and Genetics, Madison WI
2014–present Advisory board, *Ambystoma* Genetic Stock Center, Lexington KY
2015 Session Chair, 6th Strategic Conference of Zebrafish Investigators, Asilomar CA
1991–present Reviewer for journals: *Animal Behaviour*, *Behavioral Ecology*, *Bioessays*, *Biological Reviews*, *Bioscience*, *Biotechniques*, *BMC Developmental Biology*, *BMC Evolutionary Biology*, *Cell and Tissue Research*, *Cell Reports*, *Comparative Biochemistry and Physiology*, *Copeia*, *Current Biology*, *Development*, *Development, Disease Models and Mechanisms*, *eLife*, *Genes and Evolution*, *Developmental Biology*, *Developmental Dynamics*, *Differentiation*, *DNA Sequence*, *EMBO J*, *Evolution*, *Evolution and Development*, *Experimental Biology and Medicine*, *G3*, *Gene*, *Genes and Development*, *Genesis*, *Genes to Cells*, *Genetics*, *Heredity*, *Herpetologica*, *International Journal of Developmental Biology*, *Journal of Evolutionary Biology*, *Journal of Experimental Zoology*, *Journal of Fish Biology*, *Journal of Investigative Dermatology*, *Microscopy Research and Technique*, *Journal of Molecular Evolution*, *Journal of the Royal Society Interface*, *Mechanisms of Development*, *Methods*, *Molecular Biology and Evolution*, *Molecular Biology of the Cell*, *Molecular Genetics and Genomics*, *Nature*, *Nature Cell Biology*, *Nature Communications*, *Nature Genetics*, *Pigment Cell and Melanoma Research*, *PLoS*, *PLoS Genetics*, *PLoS One*, *Proceedings of the Royal Society of London, Series B*, *PNAS*, *Science*, *Trends in Ecology and Evolution*, *Trends in Genetics*, *Zebrafish*

Advising:

Postdoctoral current: Andrew Aman, Dylan Huang, Jin Liu, Braedan McCluskey, Abhishek Mishra, Nivedita Mishra
former: Ray Engeszer, Dae Seok Eom, Michael Lang, Sarah McMenamin, Nathan Parker, Larissa Patterson
Graduate current: Emily Bain, Evan Brown, Victor Lewis, Lauren Saunders, Jessica Spiewak
former: Erine Budi (Ph.D., UW); Michael Elizondo* (Ph.D., UT); Ray Engeszer (Ph.D., UT); Alyssa Matthews (M.A., UW), Ian Quigley (Ph.D., finished with M. Shankland, UT); Anna McCann (M.S., UW); Larissa Patterson (Ph.D., UW); Helena Telfer (Ph.D., UW)
rotation students: Alex Hart, Chelsea Kidwell*, Shannon McGonagle, Madeline Sandoval, Lauren Saunders, Meredith Bache-Wiig
Undergraduate UVA (10 total): Julia Boehling, Jailing Cai, Margaret Kim, Joseph Mancusi, Danni Martin, Claire Reagan, Dev Patel, Joe Pizzuti, Lavinia Sims, Samantha Sturiale

UW (62 total): Matt Bessee, Olivia Blackstone, Kyle Barry, Enina Bogdani*, Jared Brinck, Paige Castro*, Madeleine Chandless, Derek Chen, Sonya Chen, Adrienne Cohen, Marianne Cole, Hannah Correll, Brittany Dean, Amy Erdman, Christopher Ferguson*†, Alexis Fulbright, Dany Hage, James Hamill, Patrick Herndon, Inseok Hwang, Chris Kaperak, Danish Khan, Emiko Kobayashi, Kellie Kou, Rachel Krzeczowski, Andrew Krisnawan, Eunice Lau, Briana Lee, Kate Lee, Jasmine Lee-Barber, Hannah Leingang, Christina Leonhard, Jacqui Levy, Eva Li, Matt Lincoln, Tiffany Gordon, Megan Grout, Kellie Kou, Hannah Majeski, Michelle McCarthy, Tristan O'Mara, Serge Palehka, Juil Park, Stephanie Pham*, Thao Pham, Anne Pruett, Sarah Redmond, Kai Rogerst, Shadrack Schneider†, Amanda Sekijima, Rebecca Slingwine, Colin Smith†, Samantha Stearns, Kristine Yuchen Sun, Alexandra Townsend, Caitlyn Tung, Zach Waller, Jessica Wasicek, Tyson Winder, Corey Winston Jones-Wienert, Caterina Zagona-Prizo

UT (22 total): Gayle Klein, Attila Kalocsay, Kristyn Becker, Kristin Cerame, Yung-Ping Chin, Clarissa Lieu, Theresa Yang, Richard Nuckels*, Ronald Seo, Kalyani Naik, Reid Roberts, Ronald Seo, Ray Mody, Jessica Klodt, Krista Musser, Michelle Kierstead, Laura Alberici da Barbiano, Flavia Araujo*, Travis Ruetz*, Daniel Quiat, Abhishek Kumar, Matt Davis

Research Associates Jasmine Lee Barber, Marianne Cole, Tiffany Gordon, Samer Halabiya, Emily Herrington, Rachel Krzeczowski, Tracy Larson, Cynthia Lee, Erin MacDonald, Joan Manuel, Anna McAnn, Margaret Mills, Richard Nuckels*, Thao Pham, Amber Schwindling, Rebecca Slingwine, Colin Smith†, Jessica Turner

Visiting Scholar Xue Tian (Associate Professor, College of Fisheries, Henan Normal University, China; UVA 2018–2019)

*URM, †veteran

Awards and fellowships received by trainees:

2001–2004 NSF Graduate Research Fellowship to Ray Engeszer
 2006–2009 NSF Graduate Research Fellowship to Helena Telfer
 2006–2009 NIH NRSA F31 DK074369 Ruth Kirchstein Minority Predoctoral Fellowship to Michael Elizondo
 2006–2007 NIH T32 HD007183 Interdisciplinary Training in Developmental Biology to Larissa Patterson
 2007–2010 NSF Graduate Research Fellowship to Margaret Mills
 2007–2010 NSF Graduate Research Fellowship to Larissa Patterson
 2008–2010 NIH NRSA F31 AG032825 Ruth Kirchstein Predoctoral Fellowship to Helena Telfer
 2010–2013 NIH NRSA F32 GM090362 Ruth Kirchstein Postdoctoral Fellowship to Sarah McMenamin
 2012–2013 Mary Gates Research Scholarship to Hannah Majeski
 2012 University of Washington-Howard Hughes Medical Institute Integrative Research Internship Program, Olivia Blackstone
 2014–2016 NIH K99 GM105874 Pathway to Independence Award to Sarah McMenamin
 2014–2016 NIH T32 GM007067 Training Program in Cellular and Molecular Biology to Jessica Spiewak
 2014–2017 NIH T32 HD007183 Interdisciplinary Training in Developmental Biology to Emily Bain
 2015–2016 NIH T32 HD007183 Interdisciplinary Training in Developmental Biology to Meredith Bache-Wiig
 2016–2019 NIH NRSA F32 GM119202 Ruth Kirchstein Postdoctoral Fellowship to Braedan McCluskey
 2016–2018 NIH T32 GM007067 Training Program in Cellular and Molecular Biology to Lauren Saunders
 2016–2018 NIH T32 GM007067 Training Program in Cellular and Molecular Biology to Christina Carnevale
 2017–2019 Swiss National Science Foundation Early Postdoc Mobility Grant P2FRP3_171825 to Abhishek Kumar Mishra

Teaching:

2001–2005 Bio337/383k8 *Development and Evolution* (UT)

2002 Bio383k4 *Recent advances in Development and Reproduction* (UT)
 2003 Bio383K8 *Current Literature in Developmental Biology* (UT)
 2001–2005 Bio377/277 Undergraduate Research (23 semesters individual instruction) (UT)
 2005 BIOL500A *Graduate Professional Life Seminar*, guest speaker (UW)
 2005 BIOL560H Graduate student grant writing seminar, guest speaker (UW)
 2005 BIOL485 *Zebrafish Embryology and Biotechnology*, guest speaker (UW)
 2006–2007 BIOL546/CONJ536 *Evolution of Developmental Signaling Pathways* (UW; shared instruction with B. Swalla, 1 quarter/year)
 2012 BIOL560H Graduate student grant writing seminar, guest reviewer and discussion leader (UW)
 2011–2014 BIOL545 MCD-Biology Professional Skills Seminar (UW; sole instructor, enrollment 15, 3 quarters/year)
 2006–2012, 2014–2015 BIOL415 *Development and Evolution* (UW; sole instructor, enrollment 60, 1 quarter/year)
 2006–2012, 2014–2016 BIOL411 *Developmental Biology* (UW; sole instructor, enrollment 120, 1 quarter/year)
 2016–2017 BIOL415 *Development and Evolution* (UW; sole instructor, enrollment 120, 1 quarter/year)
 2018 BIOL3010 Genetics and Molecular Biology (UW; shared instruction with Doug Taylor, 1 semester/year)

University committees and service:

2000–2001 Zoology Graduate Fellowship Committee, UT
 2001 Ecology, Evolution, and Behavior Graduate Curriculum Committee, UT
 2001–2004 Cell and Molecular Biology Graduate Admissions Committee, UT
 2002 Institute for Cellular and Molecular Biology, Core Facilities Evaluation Committee, UT
 2002–2004 Institute for Cellular and Molecular Biology, Core Facilities Standing Oversight Committee, UT
 2001–2003 Member at large, Faculty Council, UT
 2003 Developmental Biologist Search Committee, Section of Mol, Cell and Dev Biology, UT
 2003 UTeach Evolutionary Biologist Search Committee, Section of Integrative Biology, UT
 2002–2004 Ecology, Evolution and Behavior Graduate Fellowship and Evaluation Committee, UT
 2002–2003 Chair, Faculty Council Calendar Committee, UT
 2002–2004 Faculty Grievance Panel Pool, UT
 2003 Cell and Molecular Biology Qualifying Exam Chairmans Committee, UT
 2003 Molecular Evolution Search Committee, Section of Integrative Biology, UT
 2000–2004 12 qualifying exam committees in Mol Biol, Zoology, and Ecol, Evol, and Behav, UT
 2000–2004 7 dissertation committees Mol Biol, Zoology, and Ecol, Evol, and Behav, UT
 2005–2007 Graduate Program Committee, Department of Biology, UW
 2007 Faculty Appointments Committee, Department of Biology, UW
 2007, 2008 Organizer, Seattle Developmental Biology Fall Retreat
 2007 Burke Museum, Department of Biology Curator Genetic Resources Search Committee, UW
 2010 Co-organizer MCD-Biology Minisymposium, Department of Biology, UW
 2008–2011 Chair, Faculty Appointments Committee (standing faculty search committee), Department of Biology, UW
 2008–2011 Executive Committee, Department of Biology, UW
 2010–2011 Chair, Website Committee, Department of Biology, UW
 2010–2011 IT Committee, Department of Biology, UW
 2011 Faculty Mini-Retreat Committee, Department of Biology, UW
 2011 (summer) Chair, IT and Website Committee, Department of Biology, UW
 2011 (summer) Chair, Promotion and Tenure Committee, Department of Biology, UW
 2010–2012 Royalty Research Foundation Review Committee, UW
 2006–2014 Molecular and Cellular Biology Steering Committee, UW
 2013–2014 Member, Faculty Appointments Committee, Department of Biology, UW
 2014–2015 Member, Cell Biology Search Committee, Department of Biology, UW
 2015–2016 Member, Graduate and Postdoctoral Studies Committee, Department of Biology, UW

2005–2017 Member, dissertation committees in Biology, Molecular and Cellular Biology, UW (Hannah Arbach, Ivan Cruz, Kevin Curran, Nick Coley, Melissa Eng, Ashley George, Juliane Gust, Nan Jiang, Amy Lanctot, Jiae Lee, Chelsea Kidwell, Ann Wen-Yang Lin, Shawn Luttrell, Kory Luedke, Tiffany Malek, Hillary McGraw, Lauren Vandepas, Cristina Walcher)

2017–present Member, Graduate Studies Committee, Department of Biology, UVA

2017–present Member, Steering Committee, Biomedical Sciences Graduate Program, UVA

2017–present Organizer, Developmental Biology Research Group, UVA

2018–present Member, Steering Committee, Cell Biology Graduate Program, UVA

2018–present Chair, Research Committee, Department of Biology, UVA

Outreach:

2007–2010 Host lab tour, Naches High School

2007 Host lab tour, Summer Institute in Life Science program, UW

2007 Class exercise on human perception for Summer Institute in Life Science program high school teachers (resulting data published in Engeszer et al. *PNAS* 105:929, 2008)

2012 Host lab tour, Anacortes High School

2010–2012 Participating lab, National Lab Day

2012 Host lab tour, high school students in UW Summer Scholars Program

Invited seminars and symposia:

1994 Center for Population Biology, University of California at Davis

1995 *Evolution of Development: Molecules, Mechanisms, Phylogenetics*, Bodega Marine Lab, CA

1996 Department of Biological Structure, University of Washington, Seattle

1996 Department of Biology, Humboldt State University, CA

1996 Institute of Neuroscience, University of Oregon, Eugene

1997 Department of Integrative Biology, University of California at Berkeley

1997 Department of Zoology, University of New Hampshire, Durham

1997 Section of Evolution and Ecology, University of California at Davis

1998 Department of Biology, Washington University, St. Louis

1998 Department of Zoology, University of Texas, Austin

1998 *Developmental Constraints in Development and Evolution*, University of Kentucky

1999 *Banbury Center Conference on Biology of Pigmentation*, Cold Spring Harbor

1999 Department of Biology, Colorado State University, Ft. Collins

1999 Department of Biology, Reed College, Portland OR

1999 Section of Integrative Biology, University of Texas at Austin

1999 Southwest Regional Developmental Biology Meeting, Austin

2000 Department of Biology, University of Maryland, College Park

2000 *Keynote address*, Annual Meeting Japanese Society for Pigment Cell Research, Sapporo, Japan

2000 Department of Integrated Biosciences, University of Tokyo, Japan

2000 Graduate School of Medicine, Kyoto University Medical School, Japan

2001 *Color patterns: Development and Evolution*, European Society for Evolutionary Biology, Denmark.

2002 *Evolutionary Developmental Biology: Comparative Approaches to Uncovering Patterns and Constraints*, International Congress of Systematics and Evolutionary Biology VI, Patras Greece

2002 *IGERT Colloquium on Development and Evolution*, Indiana University, Bloomington

2002 Department of Biology, University of Kentucky, Lexington

2003 Department of Human Genetics, University of Utah Medical School, Salt Lake City

2003 Department of Organismal Biology and Anatomy, University of Chicago

2003 Department of Molecular and Cellular Biology, University of California at Berkeley

2003 *Developmental Basis of Evolutionary Change*, University of Chicago

2003 Department of Genetics, University of Georgia, Athens

2004 *Genes Underlying Pattern*, American Association of Anatomists Annual Meeting, Washington DC

2004 Department of Biology, Indiana University, Bloomington

2004 Department of Biology, University of Washington, Seattle

2004 Department of Biology, Duke University, Durham NC

2004 Departement de Biologie du Developpement, Institut Pasteur, Paris

2005 Department of Ecology and Evolution, UC Irvine

2005 Department of Developmental and Cell Biology, UC Irvine

2005 Department of Biological Sciences, University of Idaho

2005 Department of Biological Sciences, Lehigh University, Bethlehem PA

2005 Keynote speaker, Genetics University of Iowa Graduate Program retreat, Iowa City

2005 Fred Hutchinson Cancer Research Center, Seattle

2005 Children's Memorial Research Center, Chicago

2006 *Zebrafish in Context*, Society for Integrative and Comparative Biology

2006 Department of Biology, Simon Fraser University, BC

2006 Department of Biology, Reed College, Portland, Oregon

2007 Department of Zoology, University of Hawaii, Honolulu

2007 Departments of Molecular Biology and Ecology & Evolution, IGERT, University of Oregon

2007 Section of Molecular and Cellular Biology, University of California at Davis

2007 *Disease Connections in Development*, American Association of Anatomists, Washington DC

2007 *NESCent Workshop on Poeciliid Genomics*, Duke University, NC

2007 Department of Zoology, Oregon State University, Corvallis

2007 *Genotype Phenotype Map Symposium*, International Congress on Vertebrate Morphology, Paris

2007 *Evolutionary Genetics of Coloration*, European Society for Evolutionary Biology, Uppsala, Sweden

2007 NOAA Northwest Fisheries Science Center, Seattle

2008 Department of Microbiology, Immunology and Molecular Genetics, University of California Los Angeles

2008 *Molecular Mechanisms of Developmental Timing*, HHMI Janelia Farm Research Conference

2008 National Institute of Child Health and Human Development, NIH, Bethesda MD

2008 *Evolution and Diversity of Pattern*, Society for Developmental Biology, Philadelphia PA

2008 *Morphogenesis, Limb Growth, Gastrulation, Somitogenesis, and Neural Tube Formation Symposium*, Mathematical Biosciences Institute, Ohio State University

2008 Department of Biological Sciences, University of Alberta, Canada

2009 Department of Biology, University of Victoria, Canada

2009 Human Medical Genetics Program, School of Medicine, University of Colorado, Denver

2010 Melanocyte Development, Melanogenesis and Genetics. Pan American Society for Pigment Cell Research, Vancouver, Canada

2011 Department of Genetics, University of North Carolina, Chapel Hill.

2012 *IGERT Evolution, Development and Genomics Symposium: The Future of Evo-Devo*. Portland, OR.

2012 Pan American Society for Pigment Cell Research, Deer Valley, UT.

2012 Huntsman Cancer Institute, University of Utah, Salt Lake City.

2013 Phenome integration Workshop, San Francisco, CA

2013 Max Planck Institute for Developmental Biology, Tübingen, Germany.

2013 Institute for Stem Cell and Regenerative Medicine, Stem Cell Symposium, Seattle, WA.

2013 Neurosciences Seminar Series, Université Paris Descartes, Paris, France.

2013 Gordon Research Conference on Neural Crest & Cranial Placodes (Stonehill College, Easton MA)

2014 Zebrafish Development and Genetics, Madison, WI; Workshop, *Post-embryonic Development*

2015 Developmental Colloquium, Duke University, Durham

2015 Biology Department, Reed College, Portland OR

2015 Department of Pharmacological and Physiological Science, St. Louis University School of Medicine, St. Louis MO

2015 Department of Pharmacology and Toxicology, University of Alabama School of Medicine, Birmingham

2015 European Society for Pigment Cell Research 19th Meeting, Edinburgh Scotland

2015 Institute for Cellular and Molecular Biology, University of Texas Austin

2015 Department of Ecology and Evolutionary Biology, Princeton University

2016 Department of Biology, University of Virginia, Charlottesville

2016 Public Responsibility in Medicine and Research (PRIM&R) National Institutional Animal Care and Use Committee (IACUC) Conference, Bellevue WA

- 2016 Graduate Program in Neuroscience Seminar, University Washington, Seattle WA
- 2016 Basic and Translational Sciences Seminar Series, Department of Cell, Developmental & Cancer Biology and the Knight Cancer Institute, Oregon Health Sciences University, Portland OR
- 2017 Keynote speaker, Cell Biology Departmental Retreat, Duke University School of Medicine,
- 2017 International Pigment Cell Conference, Denver CO
- 2017 ZDM10 Zebrafish Disease Models Conference San Diego CA
- 2017 Department of Biochemistry and Cell Biology, Stony Brook University NY
- 2018 Carnegie Institution, Department of Embryology, Baltimore MD
- 2018 Memorial Sloan Kettering Cancer Center, Weill Cornell Medical College, New York NY
- 2018 Mid-Atlantic Regional Society for Developmental Biology Meeting, Charlottesville VA
- 2018 European Society for Evolutionary Developmental Biology, Galway, Ireland
- 2018 Society for Developmental Biology 77th Annual Meeting, Portland OR
- 2018 Symposium to honor Steve Johnson, Washington University School of Medicine, St. Louis (pending)
- 2019 Department of Genetics, University of Wisconsin (pending)
- 2019 Pan American Society for Pigment Cell Research, Portland OR (pending)
- 2019 National Institute of Child Health and Human Development, Division of Developmental Biology, NIH, Bethesda MD (pending)
- 2019 Committee on Development, Regeneration and Stem Cell Biology, University of Chicago (pending)
- 2019 Mechanistic and Interdisciplinary Studies of Biological Systems training program, University of North Carolina, Chapel Hill (pending)
- 2019 Developmental and Stem Cell Biology Seminar Series, Duke University School of Medicine, Durham NC (pending)
- 2019 Phagocytes Gordon Research Conference, Waterville Valley NH (pending)
- 2019 Department of Biology, Virginia Commonwealth University, Richmond VA (pending)

Presented papers:

- 1991 Society of Ichthyologists and Herpetologists, New York (poster; D Parichy, RH Kaplan)
- 1992 Society for the Study of Evolution, Berkeley (talk)
- 1993 International Workshop on the Molecular Biology of Axolotls, Indianapolis IN (poster)
- 1994 Panamerican Society for Pigment Cell Research, Philadelphia (poster; D Parichy, CA Erickson.)
- 1994 Society for the Study of Evolution, Athens, GA (talk)
- 1995 Society for Developmental Biology, San Diego (poster)
- 1995 Society for the Study of Evolution, Montreal (talk)
- 1996 Society for Developmental Biology, Nashville (poster)
- 1998 Panamerican Society for Pigment Cell Research. Snowmass (poster; K Mason, D Parichy, SR Voss)
- 1998 Zebrafish Development and Genetics, Cold Spring Harbor (talk)
- 1998 Zebrafish Development and Genetics, Cold Spring Harbor (poster; A Nechiporuk, D Parichy, S Johnson)
- 1999 Society for Developmental Biology, Charlottesville, VA (poster; D Parichy, SL Johnson)
- 2000 Society for Integrative and Comparative Biology, Atlanta, GA (talk)
- 2000 Society for Integrative and Comparative Biology, Atlanta, GA (poster; SR Voss, D Parichy)
- 2000 Zebrafish Development and Genetics, Cold Spring Harbor (talk)
- 2001 Annual Meeting Society for the Study of Evolution (poster; J Smith, SR Voss, D Parichy)
- 2001 Texas Regional Zebrafish Meeting, UT Health Sciences Center San Antonio (talk, with J Manuel)
- 2002 Zebrafish Development and Genetics, Madison, WI (talk; JM Turner, D Parichy)
- 2002 Zebrafish Development and Genetics, Madison, WI (poster; JM Turner, D Parichy)
- 2002 Society for Behavioral Ecology, Montreal (talk; R Engeszer, M Ryan, D Parichy)
- 2002 *IGERT Colloquium on Development and Evolution*, Indiana University, Bloomington (poster; SR Voss, D Parichy)
- 2003 Society for Developmental Biology, Boston (poster; JM Turner, D Parichy)
- 2003 Society for Developmental Biology, Boston (poster; N Parker, JM Turner, D Parichy)
- 2003 Society for Developmental Biology, Boston (talk; RA Roberts, J Manuel, D Parichy)
- 2003 NSF-EPSCoR Meeting, University of Kentucky, Lexington (poster; JA Walker, S Putta, JJ Smith, E Tanaka, B Haberman, DM Gardiner, D Parichy, SR Voss)

2003 Texas Regional Zebrafish Meeting, Texas A&M (poster; N Parker, J Turner, D Parichy)
 2003 Texas Regional Zebrafish Meeting, Texas A&M (poster; I Quigley, D Parichy)
 2003 Texas Regional Zebrafish Meeting, Texas A&M (talk; R Engeszer, M Ryan, D Parichy)
 2003 Texas Regional Zebrafish Meeting, Texas A&M (talk)
 2004 Zebrafish Development and Genetics, Madison WI (poster; R Engeszer, M Ryan, D Parichy)
 2004 Zebrafish Development and Genetics, Madison WI (poster; M Elizondo, E Macdonald, J Turner, D Parichy)
 2004 Zebrafish Development and Genetics, Madison WI (talk)
 2004 Zebrafish Development and Genetics, Madison WI (poster; I Quigley, E Macdonald, J Manuel, R Nuckels, D Parichy)
 2004 Zebrafish Development and Genetics, Madison WI (N Parker, D Parichy)
 2004 Zebrafish Development and Genetics, Madison WI (E Budi, D Quiat, E Herrington, T Ruetz, J Turner, N Parker, E Macdonald, D Parichy)
 2004 Society for Developmental Biology, Southwest Regional Meeting, Dallas TX (poster; M Elizondo, E Macdonald, D Parichy)
 2004 Society for Developmental Biology, Southwest Regional Meeting, Dallas TX (poster; I Quigley, E Macdonald, J Manuel, R Nuckels, D Parichy)
 2005 Smithville Developmental Biology Meeting (talk; M Elizondo, D Parichy)
 2005 Seattle Winter Developmental Biology Meeting (poster; E Budi, D Parichy)
 2005 Seattle Winter Developmental Biology Meeting (poster; M Elizondo, E Macdonald, D Parichy)
 2006 Society for Integrative and Comparative Biology, Orlando FL (talk; R Engeszer, M Ryan, L. Alberici Barbiano, D Parichy)
 2006 Northwest Regional Developmental Biology Meeting (poster; E Budi, D Parichy)
 2006 Northwest Regional Developmental Biology Meeting (talk; M Elizondo, D Parichy)
 2006 Northwest Regional Developmental Biology Meeting (poster; M Mills, D Parichy)
 2006 Zebrafish Development and Genetics, Madison WI (poster; R Engeszer, G Wang, M Ryan, D Parichy)
 2006 Zebrafish Development and Genetics, Madison WI (poster; R Engeszer, L Alberici da Barbiano, D Parichy)
 2006 Zebrafish Development and Genetics, Madison WI (poster; E Budi, D Parichy)
 2006 Zebrafish Development and Genetics, Madison WI (poster; M Mills, D Parichy)
 2006 Zebrafish Development and Genetics, Madison WI (talk; M Elizondo, D Parichy)
 2006 Society for Developmental Biology, Ann Arbor MI (talk; M Elizondo, D Parichy)
 2006 Society for Developmental Biology, Ann Arbor MI (poster; M Mills, D Parichy)
 2007 2nd Strategic Conference of Zebrafish Investigators, Asilomar CA (talk; D Parichy)
 2007 Northwest Regional Developmental Biology Meeting (poster; L Patterson, D Parichy)
 2007 Northwest Regional Developmental Biology Meeting (talk; E Budi, E MacDonald, L Patterson, D Parichy)
 2007 Northwest Regional Developmental Biology Meeting (poster; M Elizondo, D Parichy)
 2007 Gordon Research Conference—Collagens. New London, NH (poster; HE Telfer, RA Underwood, DM Parichy, PH Byers, JM Pace)
 2007 International Ethological Conference, Dalhousie NS (talk; R Engeszer, D Parichy)
 2008 Northwest Regional Developmental Biology Meeting (poster; E Budi, L Patterson, D Parichy)
 2008 Northwest Regional Developmental Biology Meeting (poster; M Lang, T Gordon, D Parichy)
 2008 Zebrafish Development and Genetics, Madison WI (poster; M Elizondo, D Parichy)
 2008 Zebrafish Development and Genetics, Madison WI (poster; L Patterson, M Mills D Parichy)
 2008 Zebrafish Development and Genetics, Madison WI (poster; R Engeszer, D Parichy)
 2008 Zebrafish Development and Genetics, Madison WI (poster; E Budi, D Parichy)
 2008 Zebrafish Development and Genetics, Madison WI (poster; K Hultman, E Budi, D Parichy, S Johnson)
 2008 Zebrafish Development and Genetics, Madison WI (poster; M Lang, D Parichy)
 2008 Zebrafish Development and Genetics, Madison WI (poster; T Larson, M Mills, T Gordon, D Parichy)
 2010 Northwest Regional Developmental Biology Meeting (talk; E Budi, D Parichy)
 2010 Zebrafish Development and Genetics, Madison WI (talk; L Patterson, M Lang, T Gordon, D Parichy)
 2010 Zebrafish Development and Genetics, Madison WI (poster; E Budi, L Patterson, D Parichy)

- 2010 Zebrafish Development and Genetics, Madison WI (poster; M Elizondo, E Budi, D Parichy)
- 2010 Zebrafish Development and Genetics, Madison WI (poster; D Parichy, R Engeszer, M Elizondo, T Gordon)
- 2010 Society for Developmental Biology, Albuquerque NM (poster; E Budi, L Patterson, D Parichy)
- 2011 Northwest Regional Developmental Biology Meeting (poster; S McMenamin, T Gordon, J Minchin, J Rawls, D Parichy)
- 2011 Northwest Regional Developmental Biology Meeting (poster; L Patterson, D Parichy)
- 2012 Zebrafish Development and Genetics, Madison WI (poster; DS Eom, S Inoue, LB Patterson, TN Gordon, R Slingwine, M Watanabe, S Kondo D Parichy)
- 2012 Zebrafish Development and Genetics, Madison WI (poster; LB Patterson, D Parichy)
- 2012 Zebrafish Development and Genetics, Madison WI (talk; SK McMenamin, J Minchin, JF Rawls, D Parichy)
- 2013 5th Strategic Conference of Zebrafish Investigators, Asilomar CA (talk; D Parichy)
- 2013 Pigment Cell Development Workshop, Edinburgh, Scotland (talk and poster; L Patterson, D Parichy)
- 2014 Northwest Regional Developmental Biology Meeting (talk; L Patterson, D Parichy)
- 2014 Northwest Regional Developmental Biology Meeting (poster; S McMenamin, D Parichy)
- 2014 Northwest Regional Developmental Biology Meeting (poster; E Bain, D Parichy)
- 2014 Zebrafish Development and Genetics, Madison, WI (poster; E Bain, D Parichy)
- 2014 Zebrafish Development and Genetics, Madison, WI (poster; J Spiewak, D Parichy)
- 2014 Zebrafish Development and Genetics, Madison, WI (talk; L Patterson, E Bain, D Parichy)
- 2014 Society for Developmental Biology, Seattle WA (poster; L Patterson, D Parichy)
- 2014 Society for Developmental Biology, Seattle WA (poster; E Bain, D Parichy)
- 2014 Society for Developmental Biology, Seattle WA (poster; J Spiewak, D Parichy)
- 2014 Society for Developmental Biology, Seattle WA (poster; J Spiewak, SR Voss, D Parichy)
- 2014 Society for Developmental Biology, Seattle WA (poster; SK McMenamin, D Parichy)
- 2014 Society for Developmental Biology, Seattle WA (talk; DS Eom, D Parichy)
- 2015 6th Strategic Conference of Zebrafish Investigators, Asilomar CA (talk; D Parichy)
- 2015 Northeast Regional Developmental Biology Meeting (poster; S McMenamin, D Parichy)
- 2015 American Society of Bone and Mineral Research (poster; P Huber, J Lee, CJ Watson, MH Thompson, SK McMenamin, DM Parichy, RY Kwon)
- 2016 Northwest Regional Developmental Biology Meeting (poster; EJ Bain, D Parichy)
- 2016 Northwest Regional Developmental Biology Meeting (poster; M. Bache-Wiig, D Parichy)
- 2016 Zebrafish Development and Genetics, Orlando, FL (poster; E Bain, L Saunders, D Parichy)
- 2016 Zebrafish Development and Genetics, Orlando, FL (poster; L Saunders, C Trapnell, D Parichy)
- 2016 Zebrafish Development and Genetics, Orlando, FL (poster; C Carnevale, D Parichy)
- 2016 Society for Developmental Biology, Boston (poster; DS Eom, D Parichy)
- 2017 7th Strategic Conference of Zebrafish Investigators, Asilomar CA (talk; D Parichy)
- 2017 Northwest Regional Developmental Biology Meeting (poster; L Saunders, D Parichy)
- 2017 Northwest Regional Developmental Biology Meeting (poster; V Lewis, T Winder, D Parichy)
- 2017 Northwest Regional Developmental Biology Meeting (talk; A Aman, D Parichy)
- 2018 Northwest Regional Developmental Biology Meeting (poster; V Lewis, D Raible, D Parichy)
- 2018 Northwest Regional Developmental Biology Meeting (poster; L Saunders, A Mishra, C Trapnell, D Parichy)
- 2018 Zebrafish Development and Genetics, Madison WI (poster; E Bain, B McCluskey, L Patterson, D Parichy)
- 2018 Zebrafish Development and Genetics, Madison WI (poster; B McCluskey, S Uji, J Postlethwait, D Parichy)
- 2018 Zebrafish Development and Genetics, Madison WI (poster; A Aman, A Fulbright, D Parichy)
- 2018 Zebrafish Development and Genetics, Madison WI (poster; L Saunders, C Trapnell, D Parichy)
- 2018 Zebrafish Development and Genetics, Madison WI (talk; V Lewis, J Liu, D Raible, D Parichy)
- 2018 Mid-Atlantic Regional Developmental Biology Meeting, Charlottesville VA (poster; B McCluskey, S Uji, J Postlethwait, D Parichy)

- 2018 Society for Developmental Biology 77th Annual Meeting, Portland OR (poster; V Lewis, D Raible, D Parichy)
- 2018 Society for Developmental Biology 77th Annual Meeting, Portland OR (poster; L Saunders, C Trapnell, D Parichy)