

# INGO BRAASCH

Associate Professor  
Department of Integrative Biology  
Michigan State University  
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## EDUCATION

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- 2009 **Doctoral degree (Dr. rer. nat.) in Biology** awarded with distinction (*summa cum laude*)  
University of Würzburg (Germany) – Department of Physiological Chemistry
- 2004 **Diploma in Biology**  
University of Konstanz (Germany) – Zoology/Evolutionary Biology
- 1999-2004 **Studies in Biology**, University of Konstanz

## APPOINTMENTS

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- 2022- **Associate Professor**, Michigan State University – Department of Integrative Biology
- 2016- **Assistant Professor**, Michigan State University – Department of Integrative Biology
- 2020- **Faculty Member**, MSU Cell and Molecular Biology (CMB) Program
- 2016- **Faculty Member**, MSU Ecology, Evolution, and Behavior (EEB) Program
- 2016- **Faculty Member**, MSU Genetics and Genome Sciences (GGS) Graduate Program
- 2016- **Faculty Member**, NSF BEACON Center for the Study of Evolution in Action
- 2010-2015 **Postdoctoral Fellow**, University of Oregon – Institute of Neuroscience  
Advisor: Dr. John H. Postlethwait
- 2009-2010 **Postdoctoral Fellow**, University of Würzburg – Department of Physiological Chemistry  
Advisor: Dr. Manfred Scharl
- 2005-2009 **Doctoral Student**, University of Würzburg – Department of Physiological Chemistry  
Advisors: Dr. Manfred Scharl, Dr. Jean-Nicolas Volff (ENS Lyon)
- 2004-2005 **Research Assistant**, University of Konstanz – Zoology/Evolutionary Biology  
Advisor: Dr. Axel Meyer
- 2003-2004 **Diploma Student**, University of Konstanz – Zoology/Evolutionary Biology  
Advisor: Dr. Axel Meyer
- 2000-2003 **Student Research Assistant**, University of Konstanz – Zoology/Evolutionary Biology  
Advisor: Dr. Axel Meyer

## FUNDING

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total \$3M

### External Funding

- 2020-2025 NSF EDGE FGT#2029216 - *Functional Genomics in Gar: Discovery Tools for Major Vertebrate Transitions*  
PI: Ingo Braasch; Co-PIs: Allyse Ferrara, Solomon David (Nicholls State University) \$1,621,944  
Covered by [MSU Today](#).
- 2021-2022 NSF EDGE FGT Supplement - *Research Experience for Post-Baccalaureate Students in the Biological Sciences*  
PI: Ingo Braasch \$81,396
- 2020-2022 NIH 1R13OD030023-01 - *Aquatic Models of Human Disease 2021, 10th Annual Meeting*  
Co-PIs: Ingo Braasch, Matthew Harris, Patricia Schneider, Frauke Seemann \$20,000
- 2016-2022 NIH R01OD011116 - *Resources for Teleost Gene Duplicates and Human Disease*  
Co-Investigator: Ingo Braasch; PI: John H. Postlethwait (University of Oregon) \$722,766  
Covered by [MSU Today](#).
- 2011-2013 Initiative Evolutionary Biology Grant, Volkswagen Foundation (Germany)  
PI: Ingo Braasch (University of Oregon/University of Würzburg) \$201,000

2008 Grant from the German Science Foundation DFG - *Functional evolution of pigment synthesis pathways in teleost fish through gen(om)e duplication*. Co-PIs: M. Schartl, J.N. Voff, and I. Braasch \$57,500

### Additional Funding

2022-2024 MSU EEB Seed Grant - *Rules of polyploid life: Evolution of the vertebrate nervous system by genome duplications*  
PI: Ingo Braasch \$18,284

2021 NSF BEACON - *A Tale of Two Tails: Using Developmental Genomics to Investigate the Evolution in Action of a Vertebrate Key Innovation*  
PI: Ingo Braasch \$47,380

2018-2020 NSF BEACON#1284 - *Genome duplications and their effect on brain complexity and its rapid diversification*  
Co-PIs: Ingo Braasch, Julia Ganz, Arend Hintze \$83,020

2018-2020 NSF BEACON#1233 - *Developing methods to detect functional evolutionary change in expression profiles of rapidly evolving killifishes*  
Co-PIs: Ingo Braasch, Andrew W. Thompson, Arjun Krishnan \$82,703

### Fellowships

2010-2011 Feodor Lynen Postdoctoral Fellowship from the Alexander von Humboldt Foundation (Germany) \$110,000  
2010 Postdoctoral Fellowship from the German Exchange Service DAAD (gratefully declined)

### PUBLICATIONS

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[Publons](#)

Citation Indices (GoogleScholar Citations 02/06/2024): citations 7,410 h-index 41 i10-index 58

● shared first authorship \* corresponding author † shared senior authorship

Mentee contributions: <sup>a</sup> graduate student, <sup>b</sup> postdoc, <sup>c</sup> undergraduate, <sup>d</sup> technician

### Preprint/Submitted

83. Wei, J., Wood, T.W.P., Flaherty, K., *Fitch, O.E.*<sup>a</sup>, Enny, A., Andrescavage, A., Brazer, D., Navon, D., Cohen, H., Shanabag, A., Kuroda, S., Stewart, T.A., **Braasch, I.**, and Nakamura, T. (2023) Distinct ossification trade-offs illuminate the shoulder girdle reconfiguration at the water-to-land transition. *bioRxiv* 2023.07.17.547998. Doi: 10.1101/2023.07.17.547998  
Under revision for publication in *Nature Communications*.
82. Shah, M.A., Xie, X., Rodina, M., Stundl, J., **Braasch, I.**, Šindelka, R., Rzepkowska, M., Saito, T., and Pšenička, M. (2023) Sturgeon Gut Development: A Unique Yolk Utilization Strategy Among Vertebrates. Under review for publication in *Frontiers in Cell and Developmental Biology*.
81. *Thompson, A.W.*<sup>b</sup>, Black, A.C, Huang, Y, Shi, Q., Furness, A.I., **Braasch, I.**, Hoffmann, F.G., and Ortí, G. (2021) Deterministic shifts in molecular evolution correlate with convergence to annualism in killifishes. *bioRxiv* 2021.08.09.455723. Doi: 10.1101/2021.08.09.45572. Under review for publication in *Molecular Phylogenetics and Evolution*.

### Published

80. Valentini, P., Akula, S., Alvarado-Vazquez, A., Hallgren, J., Fu, Z., *Racicot, B.*<sup>d</sup>, **Braasch, I.**, Thorpe, M., and Hellman, L. (2024) Extended cleavage specificity of two hematopoietic serine proteases from a ray-finned fish, the spotted gar (*Lepisosteus oculatus*). *International Journal of Molecular Sciences* 25, 1669.
79. Imaizumi, G., Ushio, K., Nishihara, H., **Braasch, I.**, Watanabe, E., Kumagai, S., Furuta, T., Matsuzaki, K., Romero, M.F., Kato, A., and Nagashima, A. (2024) Functional divergence in solute permeability between ray-finned fish-specific paralogs of aqp10. *Genome Biology and Evolution* 16, evad221.
78. Xu, M.R.X, Liao, Z.Y., Brock, J.R., Kang, D., Li, G.Y., Chen, Z.Q., Wang, Y.H., Gao, Z.N., Agarwal, G., Wei, K.H.C, Shao, F., Pang, S., Platts, A.E., van de Velde, J., Lin, H.M., Teresi, S.J., Bird, K., Niederhuth, C.E., Xu, J.G., Yu, G.H., Yang, J.Y., Dai, S.F., Nelson, A., **Braasch, I.**, Zhang, X.G., Schartl, M., Edger, P.P., Han, M.J., and Zhang, H.H. (2023) Maternal dominance contributes to subgenome differentiation in allopolyploid fishes. *Nature Communications* 14, 8357.
77. Mathavarajah, S., *Thompson, A.W.*<sup>b</sup>, Stoyek, M.R., Quinn, T.A., Roy, S., **Braasch, I.**, and Delleire, G. (2023) Suppressors of cGAS-STING are downregulated during fin-limb regeneration and aging in aquatic vertebrates. *Journal of Experimental Biology B: Molecular & Developmental Evolution*. doi: 10.1002/jez.b.23227. Epub ahead of print.

76. Kemmler, C.L., Smolikova, J., Moran, H., Mannion, B.J., Knapp, D., Lim, F., Czarkwiani, A., Aguayo, V.H., Rapp, V., [Fitch, O.E.<sup>a</sup>](#), Bötschi, S., Selleri, L., Farley, E., **Braasch, I.**, Yun, M., Visel, A., Osterwalder, M., Mosimann, C., Kozmik, Z., and Burger, A. (2023) Conserved enhancer logic controls the notochord expression of vertebrate Brachyury. *Nature Communications* 14, 6594.
75. Stundl, J., Martik, M., Chen, D., Raja, D.A., Franěk, R., Pospisilova, A., Pšenička, M., Metscher, B. D., **Braasch, I.**, Haitina, T., Cerny, R., Ahlberg, P., and Bronner, M. E. (2023) Ancient vertebrate dermal armor evolved from trunk neural crest. *Proceedings of the National Academy of Sciences* 120, e2221120120. See also [commentary by A. Gillis](#) in *PNAS*.
74. Mathavarajah, S., Vergunst, K. L., Williams, S. K., He, R., Maliougina, M., Habib, E. B., Park, M., Salsman, J., Roy, S., **Braasch, I.**, Roger, A. J., Langelaan, D. N., and Dellaire, G. (2023) PML and PML-like exonucleases restrict retrotransposons in jawed vertebrates. *Nucleic Acids Research* 51, 3185-3204.
73. Parey, E., Louis, A., Montfort, J., Bouchez, O., Roques, C., Iampietro, C., Lluch, J., Castinel, Donnadiou, C., Desvignes, T., Floi Bucaco, C., Jouanno, E., Wen, M., Mejri, S., Dirks, R., Jansen, H., Henkel, C., Chen, W.-J., Zahm, M., Cabau, C., Klopp, C., [Thompson, A.W.<sup>b</sup>](#), Robinson-Rechavi, R., **Braasch, I.**, Lecointre, G., Bobe, J., Postlethwait, J.H., Berthelot, C., Roest Crollius, H., and Guiguen, Y. (2022) Genome structures resolve the early diversification of teleost fishes. *Science* 379, 572–575.
72. Motoshima, T., Nagashima, A., Ota, C., Oka, H., Hosono, K., **Braasch, I.**, Nishihara, H., Kato, A. (2023) Na<sup>+</sup>/Cl<sup>-</sup> cotransporter 2 is not fish-specific and widely found in amphibians, non-avian reptiles, and select mammals. *Physiological Genomics* 55, 113-131.
71. Annona, G., Sato, I., Pascual-Anaya, J., **Braasch, I.**, Voss, V., Stundl, J., Soukup, V., Kuratani, S., Postlethwait, J.H., and D’Aniello, S. (2022) Evolution of the nitric oxide synthase family in vertebrates and novel insights in gill development. *Proceedings of the Royal Society B: Biological Sciences* 289, 20220667.
70. [Thompson, A.W.<sup>b\\*</sup>](#), [Wojtas, H.<sup>c</sup>](#), [Davoll, M.<sup>c</sup>](#), and **Braasch, I.\*** (2022) Genome of the Rio Pearlfish (*Nematolebias whitei*), a bi-annual killifish model for Eco-Evo-Devo in extreme environments. *G3 Genes/Genomes/Genetics*, jkac045. Covered by [MSU Today](#).
69. Mikami, M., Ineno, T., [Thompson, A.W.<sup>b</sup>](#), **Braasch, I.**, Ishiyama, M., and Kawasaki, K. (2022) Convergent losses of SCPP genes and ganoid scales among non-teleost actinopterygians. *GENE* 811, 146091.
68. Dornburg, A., Wcisel, D.W., Zapfe, K., Ferraro, E., Roupe-Abrams, L., [Thompson, A.W.<sup>b</sup>](#), **Braasch, I.**, Ota, T., Yoder, J.A. (2021) Holosteans contextualize the role of the teleost genome duplication in promoting the rise of evolutionary novelties in the ray-finned fish innate immune system. *Immunogenetics* 73, 479-497.
67. [Thompson, A.W.<sup>b</sup>](#), Hawkins, M.B., Parey, E., Wcisel, D., Ota, T., Kawasaki, K., Funk, E., Losilla, M., [Fitch, O.E.<sup>a</sup>](#), Pan, Q., Feron, R., Louis, A., Montfort, J., Milhes, M., [Racicot, B.<sup>d</sup>](#), Childs, K., Fontenot, Q., Ferrara, A., [David, S.R.<sup>b</sup>](#), McCune, A., Dornburg, A., Yoder, J., Guiguen, Y., Roest Crollius, H., Berthelot, C., Harris, M., and **Braasch, I.\*** (2021a) The bowfin genome illuminates the developmental evolution of ray-finned fishes. *Nature Genetics* 53, 1373-1384. Covered by [MSU Today](#).
66. Schwaner, M.J., Hsieh, S.T., **Braasch, I.**, Bradley, S., Campos, C.B., Collins, C.E., Donatelli, C.M., Fish, F.E., [Fitch, O.E.<sup>a</sup>](#), Flammang, B.E., Jackson, B.E., Jusufi, A., Mekdara, P., Patel, A., Swalla, B.J., Vickaryous, M., and McGowan, C.P. (2021) Future Tail Tales: A Forward-Looking, Integrative Perspective on Tail Research. *Integrative and Comparative Biology* 61, 521-537.
65. Enny, A., Shanabag, A., [Thompson, A.W.<sup>b</sup>](#), [Racicot, B.<sup>d</sup>](#), **Braasch, I.**, and Nakamura, T. (2021) Cellular and molecular mechanisms of frontal bone development in spotted gar (*Lepisosteus oculatus*). *Developmental Dynamics* 250, 1668-1682.
64. Vigouroux, R.J., Duroure, K., Vouigny, J., Albadri, S., Kozulin, P., Herrera, E., Nguyen-Ba-Charvet, K., **Braasch, I.**, Suárez, R., Del Bene, F., and Chédotal, A. (2021) Bilateral visual projections exist in non-teleost bony fish and predate the emergence of tetrapods. *Science* 372, 150-156. Covered by [MSU Today: A discovery that 'literally changes the textbook'](#), [Science Magazine Youtube Channel](#), [Le Monde](#), and others.
63. Feron, R., Pan, Q., Wen, M., Imarazene, B., Jouanno, E., Anderson, J., Herpin, A., Journot, L., Parrinello, H., Klopp, C., Kottler, V.A., Roco, A.S., Du, K., Kneitz, S., Adolphi, M., Wilson, C.A., McCluskey, B., Amores, A., Desvignes, T., Goetz, F.W., Takanashi, A., Kawaguchi, M., Detrich, H.W., III, Oliveira, M.A., Nóbrega, R.H., Sakamoto, T., Nakamoto, M., Wargelius, A., Karlsen, Ø., Wang, Z., Stöck, M., Waterhouse, R.M., **Braasch, I.**, Postlethwait, J.H., Schartl, M. and Guiguen, Y. (2021) RADSex: A computational workflow to study sex determination using restriction site-associated DNA sequencing data. *Molecular Ecology Resources* 21, 1715-1731.
62. **Braasch, I.\*** (2020) Genome Evolution: Domestication of the Allopolyploid Goldfish. *Current Biology* 30, R812-R815.

61. Du, K., Stöck, M., Kneitz, S., ... (19 authors) ..., **Braasch, I.**, Trifonov, V., Warren, W., Meyer, A., Guiguen, Y., and Schartl, M. (2020) An ancient whole genome duplication in a living fossil: the sterlet sturgeon genome sequence and the mechanisms of segmental rediploidization. *Nature Ecology & Evolution* 4, 841-852. Featured as [Nature Milestone: Genomic Sequencing](#). [Recommended by Faculty of 1000](#). 
60. McCluskey, B. M. and **Braasch, I.\*** (2020) Zebrafish Taxonomy and Evolution. In: *The Zebrafish in Biomedical Research*, Eds. Cartner, S., Eisen, J. S. Farmer, S., Guillemin, K., Kent, M., and Sanders, G.
59. Postlethwait, J. H., and **Braasch, I.** (2020) Zebrafish Genetics. In: *The Zebrafish in Biomedical Research*, Eds. Cartner, S., Eisen, J. S. Farmer, S., Guillemin, K., Kent, M., Sanders, G.
58. Cal, L.<sup>a</sup>, Suarez-Bregua, P., **Braasch, I.**, Irion, U., Kelsh, R., Cerdá-Reverter, J. M., and Rotllant, J. (2019): Loss-of-function mutations in the melanocortin-1-receptor (Mc1r) cause disruption of dorso-ventral countershading in teleost fish. *Pigment Cell and Melanoma Research* 32, 817-828.
57. Ganz, J., Melancon, E., Wilson, C., Amores, A., Batzel, P., Strader, M., **Braasch, I.**, Diba, P., Kuhlman, J. A., **Postlethwait, J. H.**, and Eisen, J. S. (2019) Epigenetic factors Dnmt1 and Uhrf1 coordinate intestinal development. *Developmental Biology*, 455, 473-484.
56. Darnet, S., Dragalzew, A. C., Amaral, D. B., Sousa, J. F., Thompson, A. W.<sup>b</sup>, Cass, A. N., Lorena, J., Pires, E. S., Costa, C. M., Sousa, M. P., Froebisch, N. B., Oliveira, G., Schneider, P. N., Davis, M. C., **Braasch, I.**, and Schneider, I. (2019) Deep evolutionary origin of limb and fin regeneration. *PNAS* 116, 15106-1515. Covered by [MSU Today: Fish reveal limb-regeneration secrets](#); [Nature LabAnimal Research Highlights](#). [Regeneration: Regrowing lobed fins. LabAnimal 48, 262](#); and others.
55. Wolverton, E., Wong, M., Davis, P. E., Hoglin, B., **Braasch, I.**, and Dores, R. (2019) Analyzing the pharmacological properties of gar (*Lepisosteus oculatus*) melanocortin receptors: Evaluating interactions with MRAP1 and MRAP2. *General and Comparative Endocrinology* 282, 113215.
54. Cal, L.<sup>a</sup>, Suarez-Bregua, P., Comesaña, P., Owen, J., **Braasch, I.**, Kelsh, R., Cerdá-Reverter, J. M., and Rotllant, J. (2019) Countershading in zebrafish results from an Asip1 controlled dorsoventral gradient of pigment cell differentiation. *Scientific Reports* 9, 3449.
53. Spiewak, J. E., Bain, E. J., Liu, J., Kou, K., Sturiale, S. L., Patterson, L. B., Diba, P.<sup>c</sup>, Eisen, J., **Braasch, I.**, Ganz, J., and Parichy, D. M. (2018) Evolution of Endothelin signaling and diversification of adult pigment pattern in *Danio* fishes. *PLoS Genetics* 14, e1007538. [Recommended by Faculty of 1000](#). 
52. **Braasch, I.**, Bobe, J., Guiguen, Y., and Postlethwait, J. H. (2018) Reply to Sandve et al.: To sub- or neo-functionalize after whole genome duplication, that is the question. *Nature Genetics* 50, 910-911.
51. Desvignes, T., Carey, A., **Braasch, I.**, Enright, T., and Postlethwait, J. H. (2018) Skeletal development in the heterocercal caudal fin of spotted gar (*Lepisosteus oculatus*) and other Lepisosteiformes. *Developmental Dynamics* 247, 724-740.
50. **Braasch, I.\*** and Postlethwait, J. H.\* (2017) The Spotted Gar: Genomic Journeys into a Lost World. *Journal of Experimental Zoology B: Molecular and Developmental Evolution* 328, 593-595.
49. Kawasaki, K., Mikami, M., Nakatomi, M., **Braasch, I.**, Batzel, P., Postlethwait, J. H., Sato, A., Sasagawa, I., and Ishiyama, M. (2017) SCPP Genes and Their Relatives in Gar: Rapid Expansion of Mineralization Genes in Osteichthyans. *Journal of Experimental Zoology B: Molecular and Developmental Evolution* 328, 645-665.
48. Cal, L.<sup>a</sup>, Megías, M., Cerdá-Reverter, J. M., Postlethwait, J. H., **Braasch I†**, and Rotllant J.† (2017) BAC Recombineering of the Agouti Loci from Spotted Gar and Zebrafish Reveals the Evolutionary Ancestry of Dorsal-Ventral Pigment Asymmetry in Fish. *Journal of Experimental Zoology B: Molecular and Developmental Evolution* 328, 697-708. Covered by [MSU CNS News: Gars and Stripes: Research 'flags' evolutionary ancestry of pigment patterns in zebrafish, spotted gar](#).
47. Pasquier, J., **Braasch, I.**, Batzel, P., Cabau, C., Montfort, J., Nguyen, T., Jouanno, E., Berthelot, C., Klopp, C., Journot, L., Postlethwait, J. H., Guiguen, Y., and Bobe, J. (2017) Evolution of gene expression after whole-genome duplication: New insights from the spotted gar genome. *Journal of Experimental Zoology B: Molecular and Developmental Evolution* 328, 709-721.
46. Cal, L.<sup>a</sup>, Suarez-Bregua, P., Cerdá-Reverter, J. M., **Braasch, I.†**, and Rotllant, J.† (2017) Fish pigmentation and the melanocortin system. *Comparative Biochemistry and Physiology A: Molecular and Integrative Physiology* 211, 26-33.
45. Suárez-Bregua, P., Torres, E., Saxena, A., Guerreiro, P. M., **Braasch, I.**, Prober, D., Morán, P., Cerda Reverter, J. M., Du, S., Adrio, F., Power, D., Canario, A., Postlethwait, J.H., Bronner, M., Cañestro, C., and Rotllant, J. (2017) Pth4, an ancient Parathyroid Hormone lost in eutherian mammals, reveals a new brain-to-bone signaling pathway. *The FASEB Journal* 31, 569-583.







44. Sukeena, J. M., Galicia, C. A., Wilson, J. D., McGinn, T., Boughman, J. W., Robison, B. D., Postlethwait, J. H., **Braasch, I.**, Stenkamp, D. L., and Fuerst, P. G. (2016) Characterization and Evolution of the Spotted Gar Retina. *Journal of Experimental Zoology B: Molecular and Developmental Evolution* 326, 403-421.
43. Askary, A., Smeeton, J., Paul, S., Schindler, S., **Braasch, I.**, Ellis, N. A., Postlethwait, J., Miller, C. T., and Crump, J. G. (2016) Ancient origin of lubricated joints in bony vertebrates. *eLife* 5, e16415.  [Recommended by Faculty of 1000.](#)
42. **Braasch, I.\***, Gar Genome Consortium (59 authors including [Sydes, J.<sup>a</sup>](#)), and Postlethwait, J.H.\* (2016) The spotted gar genome illuminates vertebrate evolution and facilitates human-teleost comparisons. *Nature Genetics* 48, 427-437. [News and Views by D. Parichy \(2016\): The gar is a fish... is a bird... is a mammal? Nature Genetics 48, 344-345.](#) Covered by [MSU Today: Fresh discoveries from an old fish: Gar is the new biomedical friend of zebrafish and human and others.](#)
41. Pasquier, J., Cabau, C., Nguyen, T., Jouanno, Severac, D., **Braasch, I.**, Journot, L., Pontarotti, P., Klopp, C., Postlethwait, J.H., Guiguen, Y., and Bobe, J. (2016) Gene evolution and gene expression after whole genome duplication in fish: The PhyloFish database. *BMC Genomics* 17, 368.
40. **Braasch, I.\***, Peterson, S. M., Desvignes, T., McCluskey, B. M., Batzel, P., and Postlethwait, J. H.\* (2015) A New Model Army: Emerging fish models to study the genomics of vertebrate Evo-Devo. *Journal of Experimental Zoology B: Molecular and Developmental Evolution* 324, 316-341.  [Recommended by Faculty of 1000.](#) 
39. Gehrke, A. R., Schneider, I., Tena, J.J., Gomez-Marin, C., Nakamura, T., Chandran, M., de la Calle-Mustienes, E., **Braasch, I.**, Postlethwait, J.H., Gomez-Skarmeta, J.L., and Shubin, N.H. (2015) Deep conservation of autopod enhancers in a non-teleost rayfin fish. *Proceedings of the National Academy of Sciences* 112, 803-808. Covered by the [The Washington Post](#) and others. [Recommended by Faculty of 1000.](#) 
38. **Braasch, I.\***, and Schartl, M. (2014) Evolution of endothelin receptors in vertebrates. *General and Comparative Endocrinology* 209, 21-34. [Recommended by Faculty of 1000.](#) 
37. Ganz, J., Kroehne, V., Freudenreich, D., Machate, A., Geffarth, M., **Braasch, I.**, Kaslin, J., and Brand, M. (2014) Subdivisions of the adult zebrafish pallium based on molecular marker analysis. *F1000Research* 3, 308.
36. Santos, M. E., **Braasch, I.**, Boileau, N., Meyer, B. S., Sauter, L., Böhne, A., Belting, H. G., Affolter, M., and Salzburger, W. (2014) The evolution of cichlid fish egg-spots is linked with a *cis*-regulatory change. *Nature Communications* 5, 5149. Covered by [Around the O: UO zebrafish help explain egg-spots on African cichlid's fins.](#)
35. **Braasch, I.**, Guiguen, Y., [Loker, R.<sup>c</sup>](#), Letaw, J. H., Ferrara, A., Bobe, J., and Postlethwait, J. H. (2014) Connectivity of vertebrate genomes: *Paired-related homeobox (Prrx)* genes in spotted gar, basal teleosts, and tetrapods. *Comparative Biochemistry and Physiology C: Toxicology and Pharmacology* 163, 24-36.
34. Meng, F., **Braasch, I.**, Phillips, J. B., Lin, X., Titus, T., Zhang, C., and Postlethwait, J. H. (2013): Evolution of the eye transcriptome under constant darkness in *Sinocyclocheilus* cavefish. *Molecular Biology and Evolution* 30, 1527-1543.
33. Amemiya, C. T., Alföldi, J., Lee A. P., Fan, S., Philippe H., MacCallum, I., **Braasch, I.**, and 84 more authors (2013) Analysis of the African coelacanth genome sheds light on tetrapod evolution. *Nature* 496, 311-316. Covered by [Around the O: UO researchers had role in international study of an ancient fish](#), [Nature News](#), [Current Biology](#), [The New York Times](#), [BBC](#), and others.  
32. Schartl, M., Walter, R. B., Shen, Y., Garcia, T., Catchen, J., Amores, A., **Braasch, I.**, Chalopin, D., Volff, J. N., Lesch, K. P., Bisazza, A., Minx, P., Hillier, L., Wilson, R. K., Fuerstenberg, S., Boore, J., Searle S., Postlethwait, J. H., and Warren, W. C. (2013): The genome of the platyfish, *Xiphophorus maculatus*, provides insights into evolutionary adaptation and several complex traits. *Nature Genetics* 45, 567-572.
31. **Braasch, I.** and Postlethwait, J. H. (2012) Fish polyploidy and the teleost genome duplication. In: *Polyploidy and Genome Evolution*, Eds. Soltis, P. S. and Soltis, D. E.
30. Anderson, J. L., Rodriguez Mari, A., **Braasch, I.**, Amores, A., Hohenlohe, P., Batzel, P., and Postlethwait, J. H. (2012) Multiple Sex-Associated Regions and a Putative Sex Chromosome in Zebrafish Revealed by RAD Mapping and Population Genomics. *PLoS One* 7, e40701.
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12. Salzburger, W. ●, **Braasch, I.●**, and Meyer, A. (2007) Adaptive sequence evolution in a color gene involved in the formation of the characteristic egg-dummies of male haplochromine cichlid fishes. *BMC Biology* 5, 51. Covered by [New Scientist](#).
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4. Lang, M., Miyake, T., **Braasch, I.**, Tinnemore, D., *Siegel, N.*<sup>c</sup>, Salzburger, W., Amemiya, C. T., and Meyer, A. (2006) A BAC library of the East African haplochromine cichlid fish *Astatotilapia burtoni*. *Journal of Experimental Zoology B: Molecular and Developmental Evolution* 306, 35-44.
3. Taylor, J. S., **Braasch, I.**, Frickey, T., Meyer, A., and Van de Peer, Y. (2003) Genome duplication, a trait shared by 22000 species of ray-finned fish. *Genome Research* 13, 382-390. [Recommended by Faculty of 1000.](#) 
2. Van de Peer, Y., Taylor, J. S., **Braasch, I.**, and Meyer, A. (2001) The ghost of selection past: rates of evolution and functional divergence of anciently duplicated genes. *Journal of Molecular Evolution* 53, 436-446. [Recommended by Faculty of 1000.](#) 
1. Taylor, J. S., Van de Peer, Y., **Braasch, I.**, and Meyer, A. (2001) Comparative genomics provides evidence for an ancient genome duplication event in fish. *Philosophical Transactions of the Royal Society London, Series B: Biological Sciences* 356, 1661-1679.



## Publications in Progress

1. **Braasch, I.** The spotted gar as biomedical fish model for vertebrate evo-devo, disease, and regeneration. Review article for *Journal of Experimental Zoology B: Molecular and Developmental Evolution* – Special Issue: *Aquatic Models for Biomedical Evo-Devo*
2. *Racicot, B.*<sup>d</sup>, *Thompson, A. W.*<sup>b</sup>, *Baker, C.*<sup>d</sup>, Ferrara, A., *David, S.*<sup>b</sup>, and **Braasch, I.\*** What a gar wants, what a gar needs: Spawning and husbandry of Spotted Gar, an emerging model system for comparative genomics and Evo-Devo research.  
Planned submission to *Lab Animal*
3. *Thompson, A. W.*<sup>b</sup>, *Fitch, O. E.*<sup>a</sup>, Gómez-Skarmeta, J. L., and **Braasch, I.\*** The regulatory landscape of spotted gar provides insight into gene regulatory evolution before and after whole genome duplication in fish.  
Planned submission to *Genome Research*
4. *Lorena, J.*<sup>a</sup>, *Blake, K.*<sup>c</sup>, *Nie, C.*<sup>d</sup>, *Brewer, F.*<sup>c</sup>, *Kraus, M.*<sup>c</sup>, *Stants, N.*<sup>c</sup>, *Peabody, C.*<sup>d</sup>, Ganz, J., and **Braasch, I.\*** Expansion and functional diversification of glutamate receptor gene repertoires by whole genome duplication in fish.  
Planned submission to *Molecular Biology & Evolution*
5. *Bennett, C.*<sup>c</sup>, *Diba, P.*<sup>c</sup>, Melancon, E., Eisen, J., Ganz, J., and **Braasch, I.\*** Evolution of the vertebrate neural crest cell population by genome duplication and subsequent diversification of the endothelin signaling pathway.  
Planned submission to *eLife*
6. *Wojtas, H.*<sup>c</sup>, *Davoll, M.*<sup>c</sup>, *Thompson, A. W.*<sup>b\*</sup>, and **Braasch, I.\*** Evolution of hatching gland and hatching enzymes in annual killifishes.  
Planned submission to *Journal of Experimental Zoology B: Molecular and Developmental Evolution*
7. Lim, J., Sundaram, S., Yao, S., **Braasch, I.**, Meng, D., Tamura, K., Yang, D., and Winkler, C. Structural aspects of neofunctionalization in a duplicated midline growth factor.  
Planned submission to *Journal of Biological Chemistry*

## PRESENTATIONS

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### Invited Seminars

- 2024 Nicholls State University, Department of Biological Sciences. Thibodaux, LA
- 2022 University of Rochester, Department of Biology. Rochester, NY
- 2022 North Carolina State University, Genetics and Genomics Seminar Series. Raleigh, NC
- 2021 University of Bonn, Biological Colloquium. Bonn, Germany
- 2021 University of Guelph, Centre for Biodiversity Genomics. Guelph, Canada
- 2021 University of Göttingen, GönomiX Seminar. Göttingen, Germany
- 2020 Boston College, Department of Biology. Boston, MA
- 2020 University at Buffalo, Department of Biological Sciences. Buffalo, NY
- 2019 University of Akron, Integrated Bioscience. Akron, OH
- 2019 University of Illinois at Urbana-Champaign, Program in Ecology, Evolution & Conservation Biology

- 2019 University of Denver, Department of Biological Sciences. Denver, CO
- 2019 University of Oklahoma, Department of Biology. Norman, OK
- 2018 Federal University of Pará, Center for Genomics and Systems Biology. Belém, Brazil
- 2018 Michigan State University, Board of Trustees Meeting
- 2018 Tohoku University, Graduate School of Agricultural Science. Sendai, Japan
- 2017 Western Michigan University, Department of Biological Sciences. Kalamazoo, MI
- 2017 Michigan State University, Ecology, Evolutionary Biology, and Behavior (EEB) Program
- 2016 Michigan State University, Genetics Program
- 2016 Michigan State University, Kellogg Biological Station
- 2015 University of Washington, Department of Biology. Seattle, WA
- 2015 University of Basel, Department of Environmental Sciences. Basel, Switzerland
- 2015 Michigan State University, Department of Zoology. East Lansing, MI
- 2013 University of Chicago, Department of Organismal Biology and Anatomy. Chicago, IL
- 2009 Fred Hutchinson Cancer Research Center, Basic Science Division. Seattle, WA
- 2009 University of Oregon, Institute of Neuroscience. Eugene, OR
- 2008 University of Basel, Institute of Zoology. Basel, Switzerland
- 2004 University of Cologne, Institute of Genetics. Cologne, Germany
- 2004 University of Würzburg, Department of Physiological Chemistry. Würzburg, Germany

**Conference Talks** • invited

- 2024 *Odyssey of Strange Fish: Holostean Fishes Inform the Developmental Evolution of Vertebrates and Bridge Zebrafish to Human*  
Strategic Conference of Zebrafish Investigators (SCZI), Pacific Grove, CA •
- 2023 *Functional Genomics in Gar – Discovery Tools For Major Vertebrate Transitions*  
NSF EDGE Principal Investigator Conference, National Science Foundation, Alexandria, VA •
- 2023 *Odyssey of Strange Fish: Comparative Genomics and 'Ancient Fishes' Bridge Zebrafish and Human Biology*  
16<sup>th</sup> Zebrafish Disease Model Conference, Durham, NC • **Invited Keynote Speaker**
- 2023 *A Blast from the Past: Functional Genomics in 'Living Fossil Fishes' Illuminates Major Transitions and Key Innovations Across Vertebrates*  
Gordon Research Conference – Ecological and Evolutionary Genomics, Bryant University, RI
- 2022 *Odyssey of strange fish: The emerging model species gar and bowfin illuminate the developmental evolution of major transitions in vertebrates.* Midwest Society for Developmental Biology Meeting, Madison, WI
- 2022 *Odyssey of Strange Fish: Holostean Fishes Illuminate the Developmental Evolution of Major Transitions in Vertebrates.* Euro Evo-Devo 2022, Naples, Italy •
- 2022 *The Genome of the Bowfin (Amia calva) Illuminates the Development and Evolution of Ray-Finned Fishes.* Euro GAP2022: 2<sup>nd</sup> Genomes of Animals and Plants Virtual Conference •
- 2021 *Genomic Journeys into a Lost World: Investigating Holostean Fish Genomes and Development to Illuminate Vertebrate Evolution.* Evolution 2021, virtual conference
- 2021 *Odyssey of Strange Fish: Investigating 'Ancient Fish' Genomes and Development to Illuminate Vertebrate Evolution.* Society of Integrative and Comparative Biology 2021, virtual conference
- 2019 *Odyssey of Strange Fish: Investigating 'Ancient Fish' Genomes and Development to Illuminate Vertebrate Evolution.* 3<sup>rd</sup> Meeting of the Pan-American Society for Evolutionary Developmental Biology, Miami, FL
- 2019 *Gene regulatory evolution in fishes in relation to vertebrate biodiversity.* Am. Society for Biochemistry and Molecular Biology Special Symposium: Evolution and Core Processes in Gene Expression, East Lansing, MI •
- 2018 *Fresh insights from old fish: 'Ancient fishes' illuminate the genomic basis of vertebrate evolution, development and disease.* Japanese Zebrafish and Medaka Meeting, Nagoya, Japan • **International Keynote Speaker**
- 2018 *Life in technicolor: Evolution of pigmentary pathways in vertebrates.* Euro Evo Devo 2018, Galway, Ireland •
- 2017 *Ancient fish genomes illuminate vertebrate genome and gene regulatory evolution.* Am. Society for Biochemistry and Molecular Biology Special Symposium: Evolution and Core Processes in Gene Expression, Kansas City, MO
- 2017 *The spotted gar genome links biomedical fish models to human biology.*



- 8<sup>th</sup> Aquatic Animal Models for Human Disease Conference, Birmingham, AL
- 2016 *Fresh Insights from an Old Fish: Spotted Gar Illuminates the Genomic Basis of Vertebrate Evolution and Development.* NSF Beacon Center Congress, East Lansing, MI
- 2015 *The spotted gar genome links biomedical fish models to human biology.* Genomics in Action, Eugene, OR ●
- 2015 *Spotted gar: Darwin's "Living Fossil" as a new model to study the genomic basis of vertebrate evolution and development.* Aquaculture America 2015, New Orleans, LA ●
- 2015 *Sequencing the spotted gar provides connectivity among vertebrate genomes and insights into evolution by genome duplication in fish.* Plant and Animal Genome XXIII Conference, San Diego, CA ●
- 2014 *A user's perspective on next generation genome annotation: the example of the spotted gar.* 7<sup>th</sup> Aquatic Animal Models of Human Disease Conference, Austin, TX ●
- 2014 *Darwin's "Living Fossil" as a new model: Spotted Gar and the genomic basis of vertebrate Evo-Devo.* 5<sup>th</sup> Meeting of the European Society for Evolutionary Developmental Biology, Vienna, Austria
- 2014 *New insights from an old fish: The spotted gar provides connectivity among vertebrate genomes and uncovers evolutionary novelties after the teleost genome duplication.* Volkswagen Foundation Status Symposium – The Evolution of German Evolutionary Biology, Hannover, Germany
- 2014 *Less is more: Are gene function losses a driving force of vertebrate evolution?* EVO-WIBO Meeting 2014, Port Townsend, WA
- 2014 *Fresh insights from an old fish: Spotted gar connects vertebrate genomes and links teleost to human biology.* Northwest Regional Society of Developmental Biology Conference, Friday Harbor, WA
- 2013 *Zebrafish connects to human biology through the spotted gar genome.* 8<sup>th</sup> European Zebrafish Meeting, Barcelona, Spain ●
- 2013 *Spotted gar provides connectivity among vertebrate genomes and links teleost to human biology.* 6<sup>th</sup> Aquatic Animal Models of Human Disease Conference, Milwaukee, WI ●
- 2012 *Emergence of new cis-regulatory modules in fish and their role in the evolution of innovation after genome duplication.* 1<sup>st</sup> Joint Congress in Evolutionary Biology, Ottawa, Canada
- 2012 *Emergence of new cis-regulatory modules in fish and their role in the evolution of innovation after genome duplication.* Society of Molecular Biology & Evolution Meeting, Dublin, Ireland
- 2010 *Pigmentation pathway evolution after genome duplication in fish.* Evolution 2010, Portland, WA
- 2008 *Evolutionary developmental genomics of pigmentation pathways in fish.* Society of Molecular Biology & Evolution Meeting, Barcelona, Spain

### Conference Posters

- 2023 *Functional Genomics in Gar – Discovery Tools For Major Vertebrate Transitions*  
NSF EDGE Principal Investigator Conference, National Science Foundation, Alexandria, VA
- 2018 *Of Fish and Men: What 'ancient fishes' can tell us about the genomic basis of our evolution, development, and diseases.* 9<sup>th</sup> Aquatic Animal Models for Human Disease Conference, Woods Hole, MA
- 2018 *Ancient fishes illuminate vertebrate evolution and connect zebrafish to human biology.* 13<sup>th</sup> International Zebrafish Conference, Madison, WI
- 2017 *Ancient fishes illuminate the genomic basis of vertebrate Evo-Devo.*  
2<sup>nd</sup> Meeting of the Pan-American Society for Evolutionary Developmental Biology, Calgary, Canada
- 2017 *The spotted gar genome links biomedical fish models to human biology.*  
8<sup>th</sup> Aquatic Animal Models for Human Disease Conference, Birmingham, AL
- 2015 *Fresh insights from an old fish: spotted gar illuminates the genomic basis of vertebrate evo-devo.*  
1<sup>st</sup> Meeting of the Pan-American Society of Evolutionary Developmental Biology, Berkeley, CA
- 2014 *Using the spotted gar genome to infer the ancestry of vertebrate gene functions.*  
Society of Molecular Biology & Evolution Meeting, San Juan, Puerto Rico
- 2012 *Emergence of new cis-regulatory modules in fish and their role in the evolution of innovation after genome duplication.* The Future of Evo-Devo, Portland, WA
- 2011 *Emergence of new cis-regulatory modules in fish and their role in the evolution of innovation after genome duplication.* Volkswagen Foundation Status Symposium - Evolution at the Sea, Sylt, Germany
- 2007 *Evolution of pigmentation pathways by gene and genome duplication in fish.* ESEB Meeting, Uppsala, Sweden
- 2006 *Evolution of pigmentation pathways by gene and genome duplication in fish.*

- 1<sup>st</sup> Meeting of the European Society for Evolutionary Developmental Biology, Prague, Czech Republic
- 2005 *Comparative genomic investigation of the pdgfrb-csf1r locus in cichlid and other teleost fishes and its implications for the evolution of teleost coloration.* ESEB Meeting, Krakow, Poland
- 2005 *Expression and adaptive evolution of the receptor tyrosine kinase csf1ra in egg-mimicking color patterns of East African cichlid fishes.* 4<sup>th</sup> European Zebrafish Meeting, Dresden, Germany
- 2005 *Evolution of pigmentation by gene and genome duplication in fish.* 4<sup>th</sup> European Zebrafish Meeting, Dresden
- 2004 *Genome evolution of cichlid fishes – insights from receptor tyrosine kinases.*  
Genomes & Evolution 2004 (SMBE/AGA meeting), Pennsylvania State University, PA

## TEACHING AND MENTORING

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### Courses

- 2024- *Frontiers in Evolutionary Developmental Biology: From Genotype to Phenotype* (IBIO890-002, MSU)
- 2021- *Fundamental Genetics* (IBIO341, Michigan State University)
- 2019- *Comparative Animal Genomics* (IBIO890-606/GEN800, Michigan State University)
- 2017-2021 *Comparative Anatomy and Biology of the Vertebrates* (IBIO328, Michigan State University)
- 2013-2015 *Genome Evolution* (lectures, Summer Program in Undergraduate Research, University of Oregon)
- 2011-2013 *Evolution of Development* (lectures and exercises for biology students, University of Oregon)
- 2011 *Bioinformatics* class term project for computer science students (University of Oregon)
- 2010-2012 *Vertebrate Evolution and Development* (lectures for biology students, University of Oregon)
- 2009-2010 *Biochemistry & Molecular Biology* (seminar series for medical students, University of Würzburg)
- 2005-2008 *Biochemistry & Molecular Biology* (Teaching Assistant, lab exercises for medical students, U Würzburg)
- 2003 *Zoological Dissection Course* for biology student (Teaching Assistant, University of Konstanz)

### Mentoring

#### Postdocs

- 2016-2022 Dr. Andrew Thompson (now: Assistant Professor tenure track, Western Michigan University)
- 2017 Dr. Solomon David (now: Assistant Professor tenure track, Nicholls State University, LA)

#### Ph.D. Students

- 2021- Jamily Lorena Ramos de Lima (MSU IBIO and EEB Program, Michigan State University)
- 2021- Brooke Jeffery (MSU IBIO and EEB Program, Michigan State University)
- 2021- Hao Yuan (MSU GGS and EEB program, Michigan State University; Co-advisor: A. Krishnan, CU Anschutz)
- 2019- Olivia Fitch (MSU IBIO and EEB Program, Michigan State University)
- 2019 Emmaline Kepp (MSU BMS/Genetics and Genome Science Program rotation)
- 2014-2017 Laura Cal Delgado (visiting Ph.D. Student from Institute of Marine Research, Vigo, Spain; now: teacher)
- 2013 Dylan R. Farnsworth (Biochemistry Ph.D. Program rotation, University of Oregon; now: postdoc, U Oregon)
- 2011-2012 Jason Sydes (Computer Science Ph.D. Student, University of Oregon; now: bioinformatician, U Oregon)

#### Post-Baccalaureate Students

- 2021-2022 Rachel Alcorn (NSF-REPS award; now: M.S. Marine, Earth & Atmospheric Sciences, North Carolina State U)

#### Technicians

- 2022- Kristen Lounsbury (Fish Facility Manager)
- 2022 Giavanna Haddock (Fish Facility Manager; now: M.S. program, MSU Fisheries & Wildlife)
- 2020-2022 Taylor Lawrence (Fish Facility Manager)
- 2017- Brett Racicot (Gar Facility Manager/Research Technician/Lab Manager)
- 2019-2020 Chuhao Nie (Technical Aide; now: Doctor of Osteopathic Medicine program, University of New England)
- 2018-2021 Camilla Peabody (Lab Manager/Research Technician; now: retired)
- 2018-2020 Theresa Gunn (Fish Facility Manager; now: Fish Facility Manager, Schumer Lab, Stanford University)
- 2018 Helen Rueckert (Interim Fish Facility Manager; now: Ph.D. Program, Duke University)
- 2017-2018 Carrie Baker (Fish Facility Manager; now: Sea Lamprey Research Program, Great Lakes Fishery Commission)
- 2016-2017 Gabriela Saldana de Jimenez (Fish Facility/Lab Manager; now: Research Technician, MSU IQ)

#### Undergraduates

- 2024- Anthony Turner (Student Fish Facility Assistant, MSU IBIO)
- 2024- Samantha Witt (Student Research Assistant, MSU Human Biology)
- 2023- Grace Urban (Student Research Assistant, MSU Honors College, Genomics & Molecular Genetics)

2023 Emalee Swisshelm (MSU SROP Summer Student, University of New Orleans)  
 2023 Ben Oudsema (Student Research Assistant, MSU IBIO)  
 2023- Isabella Rinaldi (Student Research Assistant, MSU Neuroscience)  
 2023- Alexandra Stapleton (Student Research Assistant, MSU Human Biology)  
 2022-2023 Keyana Blake (Student Research Assistant, MSU Neuroscience; now: IPREP Post-Bac Program, IUPUI)  
 2022 Chloe Ponka (Student Research Assistant, MSU Human Biology)  
 2022-2023 Dorian Wilson (Student Fish Room Assistant, MSU IBIO)  
 2021-2023 Daniel Do (Student Research Assistant, MSU IBIO)  
 2020-2021 Rachel Alcorn (Student Research Assistant, MSU IBIO)  
 2020 Sophie Snow (Student Research Assistant, MSU Animal Science)  
 2020 Jack Dales (Student Fish Room Assistant, MSU IBIO; M.S. student, Jacksonville University)  
 2019-2020 Allison Abicht (Emerging Scholar Program, MSU IBIO)  
 2019-2020 Treasure Irvin (Emerging Scholar Program, MSU IBIO)  
 2019-2021 Harrison Wojtas (Student Research Assistant, MSU IBIO; now: AmeriCorps Alaska)  
 2019-2020 Jon Schafer (Student Fish Room Assistant, MSU IBIO)  
 2019 Myles Davoll (MSU SROP Summer Student; now: Biology Ph.D. student, University of Virginia)  
 2019 Irene Hopping (Student Fish Room Assistant, MSU IBIO; now: Art teacher)  
 2019 David Wojciechowski (Student Fish Room Assistant, MSU IBIO)  
 2018-2021 Cameron Bennett (Student Research Assistant, MSU Honors College; now: Ph.D. student, CU Anschutz)  
 2018-2019 Fiona Brewer (Student Research Assistant, Neuroscience Program; now: Master's Program, Wayne State)  
 2018-2019 Taylor Lawrence (Student Fish Room Assistant, MSU IBIO: Fish Facility Manager, Braasch & Ganz Labs)  
 2018-2019 Nick Stants (Student Research Assistant, MSU IBIO; now: Health coach, Noom Inc.)  
 2018-2019 Sean Cannon (Student Research Assistant, MSU Lyman Briggs College)  
 2018 Sarah Minamyler (Student Fish Room Assistant, MSU IBIO; now: graduate school)  
 2018 Halley Taddonio (Student Fish Room Assistant, MSU IBIO)  
 2018 Aja Edwards (Emerging Scholar Program, MSU IBIO)  
 2018 Granger Hanks (visiting Student Research Assistant; M.S. student, Nicholls State University)  
 2017-2018 Madison Kraus (Student Research Assistant, MSU Lyman Briggs College, now: graduate school, UC Boulder)  
 2017-2018 Nora Straquadine (Student Fish Room Assistant, MSU IBIO; now: graduate school, Stony Brook University)  
 2017-2018 Kennedy Cogswell (Student Fish Room Assistant, MSU IBIO; now: aquarist, Sea Life)  
 2017-2018 Jake Wier (Student Fish Room Assistant, MSU IBIO; now: program coordinator, MSU BMS program)  
 2017 Brett Racicot (Student Research Assistant, IBIO; now: Research Technician, Braasch Lab)  
 2012-2014 Ryan Loker (Biology Honors Thesis, University of Oregon; now: postdoc, Columbia University)  
 2011 Henri Bunting, Jason Sydes (Computer Science class project, University of Oregon)  
 2010-2013 Colt Hoepfner, Margo Werner, Alex Titus, Krystal Abrams, Sarah Lusk (Student Res. Assistants, U Oregon)  
 2005-2006 Michael Fackelmann, Christopher Untucht (Undergraduate research projects, University of Würzburg)  
 2004-2005 Nicol Siegel (Student Research Assistant, University of Konstanz; now: postdoc EMBL)

#### *High School Interns*

2020 Caitlyn Byrne (High School Intern, DeWitt High School; now: B.S. Pharmacy Studies, UConn)  
 2019 Juliana Carey (High School Intern, DeWitt High School; now: B.S. Pharmacology, Ferris State University)  
 2019 Nick Wiesner (High School Intern, East Lansing High School; now: B.S. Biochemistry, U Michigan)  
 2018 Carleigh Robinson (High School Intern, DeWitt High School; now: B.S. Molecular Biology, Hope College)  
 2018 Molly McCarthy (High School Intern, DeWitt High School; now: B.S. Biology, Kalamazoo College)

#### **Graduate Committees**

MSU IBIO/EEB Olivia Fitch (Ph.D., 2019-, chair), Brooke Jeffrey (Ph.D., 2021-, chair), Jamily Lorena Ramos de Lima (Ph.D., 2021-, chair), Samantha Westcott (Ph.D., 2019-)  
 Kevin McCormick (Ph.D., 2019-22), Acacia Ackles (Ph.D., 2019-22), Mauricio Losilla (Ph.D., 2016-21), Hailey Jennings (M.S., 2021), Seth Smith (Ph.D., 2019-21), Lauren Koenig (Ph.D., 2018-20), Brielle Dominguez (M.S., 2019-20)  
 MSU BMS/GGS Hao Yuan (Ph.D., 2021-, chair), Marcelio Shammami (Ph.D., 2024, GGS representative)  
 MSU BMS/CMB Ian McCrary (Ph.D., 2023- ), Robin Kruger (Ph.D., 2019-23)  
 MSU EES Ryan McKeeby (Ph.D., 2018- )  
 External Peyton Blount (Ph.D. in Biology, 2020-22, Indiana State University)

## PROFESSIONAL SERVICE AND ACTIVITIES

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### Conference Organization

- 2025 Co-organizer: ASBMB Special Symposium-Evolution and Core Processes in Gene Expression, Stowers Institute, MO  
2024 Co-organizer: Satellite Symposium *Fish Evo Devo: Past, Present, and Future* @ EuroEvoDevo2024, Helsinki, Finland  
2024 Lead organizer: *Gar 2024* – Virtual Conference for Holostean Fish Research  
2024 Session Organizer “Evolution & Ecology”: 2024 Strategic Conference of Zebrafish Investigators, Pacific Grove, CA  
2022 Co-organizer: 10<sup>th</sup> Aquatic Animal Models for Human Disease Conference, Marine Biological Laboratory, Woods Hole  
2022 Co-organizer: Satellite Symposium *Genomic Basis of Developmental Evolution in Chordates*, Joint SDB-PASEDB Meeting 2022, Vancouver, Canada  
2021 Co-organizer: Aquatic Animal Models for Human Disease Webinar Series (2 webinars)  
2019 Co-organizer: ASBMB Special Symposium – Evolution and Core Processes in Gene Expression, East Lansing, MI  
2014 Session Co-Organizer: 5<sup>th</sup> European Society for Evolutionary Developmental Biology Meeting, Vienna, Austria  
2014 Session Co-Organizer: Society for Molecular Biology & Evolution Meeting (SMBE2014), San Juan, Puerto Rico  
2014 Session Chair: EVO-WIBO Meeting 2014, Port Townsend, WA  
2013 Session Chair: 8<sup>th</sup> European Zebrafish Meeting, Barcelona, Spain  
2012 Session Chair: 1<sup>st</sup> Joint Congress in Evolutionary Biology, Ottawa, Canada

### Editorial Service

Editorial Board Member: *Journal of Experimental Zoology B: Molecular and Developmental Evolution* (since 2018)

Associate Editor: *Gene* 2013-2016

Review Editorial Board: *Frontiers in Evolutionary and Population Genetics* (since 2011)

Guest Editor:

*Journal of Experimental Zoology B* – Special Issue: *Aquatic Models for Biomedical Evo-Devo* (upcoming)

*Journal of Experimental Zoology B* – Special Issue: *The Spotted Gar Genome & Vertebrate Evolution* Nov 2017, Vol.328 (7)

### Reviewing Service

Funding Agencies:

*National Science Foundation Panel and Ad Hoc Reviewer* (2020, 2021, 2022, 2023)

*Biotechnology and Biological Sciences Research Council (UK)*

*Swiss National Science Foundation*

*Swiss Tropical and Public Health Institute*

*Israel Science Foundation*

*KAUST Saudi Arabia*

Research Journals:

*Aquaculture Resources*

*BMC Evolutionary Biology*

*BMC Genomics*

*Cell Reports*

*Comp Biochemistry and Physiology C*

*Current Biology*

*Current Molecular Medicine*

*Developmental Biology*

*Evolutionary Applications*

*Evolution & Development*

*Fish and Fisheries*

*Frontiers in Endocrinology*

*Frontiers in Genetics*

*Gene*

*Gene Expression Patterns*

*Genome Biology*

*Genome Biology and Evolution*

*Genome Dynamics*

*Genome Research*

*GigaScience*

*G3: Genes/Genomes/Genetics*

*Heredity*

*Integrative and Comparative Biology*

*Int Journal of Evolutionary Biology*

*Journal of Experimental Zoology B*

*Journal of Fish Biology*

*Molecular and Cellular Endocrinology*

*Molecular Biology and Evolution*

*Molecular Ecology Resources*

*Nature*

*Nature Genetics*

*Nature Ecology & Evolution*

*Nature Communications*

*PeerJ*

*Philosoph Transactions Royal Society B*

*Physiological Genomics*

*Pigment Cell and Melanoma Research*

*PLoS Biology*

*PLoS One*

*PNAS*

*Proceedings of the Royal Society B*

*Science*

*Science Advances*

*Scientific Reports*

*Zebrafish*

*Zoological Research*



## **INSTITUTIONAL SERVICE**

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2023-	MSU Institutional Animal Care and Use Committee (IACUC) Member
2023-	MSU IBIO Fixed Term Faculty Search Committee
2022-	MSU IBIO Seminar Committee (chair 2024-2025)
2020-23	MSU IBO Chair Search Committee
2020-22	MSU EEB Seminar Committee (co-chair)
2019-	MSU VerGE: Vertebrate Genomics & Evolution Group (co-founder)
2017-	MSU BioMolecular Science Graduate Program (evaluation and interview of applicants)
2016-	MSU Graduate Committees (details above)
2018-2021	MSU IBIO Seminar Committee (chair 2020-21)
2019-2020	MSU IBIO Strategic Plan Committee
2018-2020	MSU EEBB Seminar Committee
2017-2019	MSU IBIO Fish Group (co-founder)
2018	MSU EEB Evolution Curriculum Committee (chair)
2018	MSU IBIO Strategic Hiring Committee
2018	MSU CNS Recruiting Fellowship Nomination Evaluations
2017	MSU CMSE Bioinformatics Coordinator Search (evaluation of applicants)

## **PROFESSIONAL MEMBERSHIPS** (present\* and past)

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Pan-American Society for Evolutionary Developmental Biology*	Society for Molecular Biology and Evolution (SMBE)
European Society for Evolutionary Developmental Biology (EED)*	Society for Developmental Biology (SDB)*
Society for Integrative & Comparative Biology (SICB)	International Zebrafish Society (IZFS)*
European Society for Evolutionary Biology (ESEB)	Society for the Study of Evolution (SSE)
American Association for the Advancement of Science (AAAS)*	Genetics Society of America (GSA)*
Alexander von Humboldt Network, Germany (AVH)*	