

Curriculum Vitae
Ev L. Nichols
evnichols.com

Education

September 2019 – present Ph.D. Candidate
Lab of Kang Shen, Ph.D.
Department of Biology, Stanford University, Palo Alto, California

August 2015 – May 2019 B.S. Neuroscience and Behavior
Minor: Constitutional Studies
University of Notre Dame, South Bend, Indiana
GPA: 3.905 Science GPA: 3.963

Research Experience

March 2020 – present Ph.D. Candidate, Lab of Kang Shen, Ph.D.
Department of Biology, Stanford University, Palo Alto, California
Mechanisms of axon initiation, growth, and guidance in vivo

August 2016 – August 2019 Undergraduate Research, Lab of Cody J. Smith, Ph.D.
University of Notre Dame, South Bend, Indiana
Development and regeneration of the dorsal root ganglia

May – August 2016 Student Research Assistant, Lab of Tatiana V. Byzova, Ph.D.
Lerner Research Institute, Cleveland Clinic, Cleveland, Ohio
Role of cancer exosomes in tumor metastasis

Teaching Experience

Winter 2021 – present Co-primary Instructor
BIO 114: bioBUDS (Building Up Developing Scientists)
Stanford University, Palo Alto, California

Winter 2023 Head Teaching Assistant
BIO 154 and BIO/NBIO 254: Principles of Neurobiology
Primary Instructors, Liqun Luo, Ph.D., Kang Shen, Ph.D.,
Thomas Clandinin, Ph.D.
Stanford University, Palo Alto, California

Fall 2020 Teaching Assistant
BIO 158: Developmental Neurobiology
Primary Instructor, Susan McConnell, Ph.D.
Stanford University, Palo Alto, California

Winter 2019-20 Teaching Assistant
BIO 84: Physiology
Primary Instructors, José Dinneny, Ph.D. and Craig Heller, Ph.D.
Stanford University, Palo Alto, California

Fall 2017 Teaching Assistant
BIOS 20250: Classical and Molecular Genetics
Primary Instructor, David Hyde, Ph.D.
University of Notre Dame, South Bend, Indiana

Publications

Nichols EL, Green LA, Smith CJ. 2018. Ensheathing cells utilize dynamic tiling of neuronal somas in development and injury as early as neuronal differentiation. *Neural Dev.* 13:19.

Nichols EL and Smith CJ. Pioneer axons employ Cajal's battering ram to enter the spinal cord. 2019. *Nat Commun.* 10:562.

Zhang Y*, Nichols EL*, Zellmer AM, Kankel C, Howard SH, Smith CJ. Generating intravital super-resolution movies with conventional microscopy reveals actin dynamics that construct pioneer axons. 2019. *Development.* 146:dev.171512.

Zhang Y*, Zhu Y*, Nichols E, Wang Q, Zhang S, Smith C, Howard S. A Poisson-Gaussian Denoising Dataset with Real Fluorescent Microscopy Images. 2019. *CVPR*.

Nichols EL and Smith CJ. Synaptic-like vesicles facilitate pioneer axon invasion. 2019. *Curr Biol.* 29(16):2652-2664.e4.

Zhang Y, Hato T, Dagher PC, Nichols EL, Smith CJ, Dunn KW, Howard SS. Automatic segmentation of intravital fluorescence microscopy images by K-means clustering of FLIM phasors. 2019. *Opt Lett.* 44(16):3928-3931.

Nichols EL and Smith CJ. Functional regeneration of the sensory root via axonal invasion. 2020. *Cell Rep.* 30(1):9-17.e3.

Kikel-Coury NL, Green LA, Nichols EL, Zellmer AM, Pai S, Hedlund SA, Marsden K, Smith CJ. Pioneer axons utilize a *dcc* signaling-mediated invasion brake to precisely complete their pathfinding odyssey. 2021. *J Neurosci.* JN-RM-0212-21.

Green LA*, Gallant RM*, Brandt JP, Nichols EL, Smith CJ. A subset oligodendrocyte lineage cells with the developing dorsal root entry zone during its genesis. 2022. *Front Cell Neurosci.* 16:893629.

Priest JM, Nichols EL, Smock, RJ, Mendoza JM, Meijers R, Shen K, Özkan E. Structural insights into the formation of repulsive Netrin guidance complexes. 2024. *Sci. Adv.* 10: eadj8083.
doi:[10.1126/sciadv.adj8083](https://doi.org/10.1126/sciadv.adj8083)

Fellowships

2022 – present	Leaders in Inclusive Teaching Fellowship Center for Teaching and Learning Stanford University, Palo Alto, California
2020 – 2023	Graduate Research Fellowship Program National Science Foundation Stanford University, Palo Alto, California
2018	Research Experience for Undergraduates National Science Foundation University of Notre Dame, South Bend, Indiana
2017	Summer Undergraduate Research Fellowship College of Science, University of Notre Dame, South Bend, Indiana

Selected Oral Presentations

Nichols EL. Invading the Spinal Cord: Understanding the mechanism of Cajal's battering ram in somatosensory nerve development. University of Notre Dame Summer Research Symposium. July 27, 2018.

Nichols EL. Spatiotemporal dynamics of UNC-6/Netrin signaling ensures axon guidance fidelity. Gordon Research Conference on Neural Development. August 2022. Newport, Rhode Island

Selected Poster Presentations

Nichols EL and Smith CJ. Pioneer DRG axons require invadopodia to cross glial boundary at the DREZ. June 2017. Midwest Regional Zebrafish Meeting. Cincinnati, Ohio.

Nichols EL and Smith CJ. Pioneer axons employ invadosomes at the DREZ to initiate somatosensory nerve assembly. October 2017. Life Science Symposium. South Bend, Indiana.

Nichols EL and Smith CJ. Pioneer axons employ invadosomes at the DREZ to initiate somatosensory nerve assembly. October 2017. Great Lakes Glia Meeting. Traverse City, Michigan.

Nichols EL and Smith CJ. Understanding Cajal's battering ram: Invadosomes mediate pioneer axon entry at the DREZ in development and regeneration. July 2018. Gordon Research Symposium and Conference on Neural Development. Newport, Rhode Island.

Nichols EL and Smith CJ. Understanding Cajal's battering ram: Invadosomes mediate pioneer axon entry at the DREZ in development and regeneration. September 2018. Midwest Meeting for the Society for Developmental Biology. Cleveland, Ohio.

Nichols EL and Shen K. An E3 ubiquitin ligase amplifies UNC-6/Netrin signaling during axon formation. Gordon Research Symposium and Conference on Neural Development. August 2022. Newport, Rhode Island

Nichols EL, Toro Arana S, Goolsby BC, Hammond TP, Mollhoff IN. Engaging developing undergraduate scientists through a novel course-supported academic year research program. June 2023. Gordon Research Symposium and Conference on Undergraduate Biology Education. Lewiston, Maine.

Selected Teaching Portfolio

Nichols, EL. (2023). Guided Goal Setting for Mentors and Mentees. bioBUDS: Building Up Developing Scientists, QUBES Educational Resources. doi:10.25334/YoEX-7W42.

Nichols, EL. (2023). Mentorship Check-In. bioBUDS: Building Up Developing Scientists, QUBES Educational Resources. doi:10.25334/VZGY-EX95.

Mollhoff, IN, Nichols, EL. (2023). BSURP Guided goal-setting workshop for undergraduate researchers. bioBUDS: Building Up Developing Scientists, QUBES Educational Resources. doi:10.25334/VJ5B-YE61.

Professional Affiliations

2023 – present Member, Society for Developmental Biology
2019 – present Member, Phi Beta Kappa

Professional Service

2024 Co-Chair
Cellular Beginnings, Circuit Endings
Gordon Research Symposium on Neural Development
Renaissance Tuscany Il Ciocco, Lucca, Italy

2021-2023 One-on-one Mentor
Biology Preview Program
Department of Biology, Stanford University

2023 Retreat Planning Committee
Department of Biology, Stanford University
Asilomar Conference Grounds, Pacific Grove, California

2020 Interview Weekend Planning Committee
Department of Biology, Stanford University

Honors and Awards

2015 – 2019 Dean's List (6 semesters)
College of Science, University of Notre Dame

2019 Dean's Research Award
College of Science, University of Notre Dame

2019 Outstanding Undergraduate Research Award
Neuroscience and Behavior, University of Notre Dame

2018 Goldwater Scholarship Honorable Mention

2018 Outstanding Oral Presentation
Summer Research Symposium, University of Notre Dame

Work Experience

October 2023 – present Trans& Grad Co-Coordinator
Queer Student Resources, Stanford University

August 2018 – May 2019 Resident Assistant
Sorin Hall, University of Notre Dame

August 2016 – May 2018 Academic Tutor, General Chemistry and Organic Chemistry
Academic Services for Student Athletes
University of Notre Dame