

John J. Young

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EDUCATION

Ph.D.	University of California, Berkeley	2013
M.S.	University of Oregon, Eugene	2003
B.S.	Aquinas College, Grand Rapids MI	2001

PROFESSIONAL APPOINTMENTS

Assistant Professor Biology Department, Simmons University	2019-present
Course Manager MBL Embryology	2020-present
Member Society for Developmental Biology	2008-Present

TEACHING EXPERIENCE

Assistant Professor Biology Department, Simmons University	2019-Present
Course Manager MBL Embryology Course	2020-Present
Adjunct Faculty, Emmanuel College Biol2123 Genetics Lecture for biology majors	2018
Teaching Assistant, MBL Embryology course <i>Xenopus</i> module	2014-2018
Lecturer, Harvard School of Dental Medicine	2017-Present
High School student mentor Michaela McCormack (Boston University Academy)	2018
Mentored undergraduate honors students (UC Berkeley) Daniel Wong Gloria Wu Sofia Hsu	2012-2013 2011-2012 2009-2011
Graduate Teaching Instructor, University of California, Berkeley MCB 141 Developmental Biology Spring 2010	Spring 2010
Graduate Student Instructor, University of California, Berkeley MCB 130 Cell Biology Fall 2008	Fall 2008
Teaching Assistant, University of Oregon	Winter 2002

Foundations IV (ecological physiology)

RESEARCH EXPERIENCE

Assistant Professor Simmons University Biology Department Independent research position leading a group investigating early embryogenesis and evolution of amphibians	2019-Present
Post-Doctoral Fellow Harvard Medical School Department of Genetics Investigating the evolutionary and developmental mechanisms behind Avian wing morphology and diversity. Advisor: Clifford J. Tabin	2013-2019
Graduate Student University of California, Berkeley Thesis Project 1: Identified direct transcriptional targets of wnt signaling involved in amphibian neural patterning. Thesis Project 2: Generated targeted mutations in the <i>noggin</i> locus via zinc-finger nucleases and characterized the resulting phenotype. Advisor: Richard M. Harland	2007-2013
Senior Research Technician Van Andel Institute. Investigated the mechanisms of anthrax lethal toxin mediated MAPK inhibition. Supervisor: Nick S. Duesbery	2004-2007
Graduate Student University of Oregon Thesis project: Experimental harvests of macroalgae along the Oregon coast with an analysis of associated epiphytic diatom communities. Advisor: Lynda Shapiro	2001-2003
Student Embryology Course Marine Biological Laboratory, Woods Hole, MA	2011
Student Cell and Developmental Biology of <i>Xenopus</i> Course Cold Spring Harbor Laboratory, Cold Spring Harbor, NY	2006
Student NEB Molecular Biology Summer Workshop Smtih College, Northampton, MA	2005

FIELDS OF EXPERTISE

Molecular Biology	Developmental Biology	Embryology
Cell Biology	Evolutionary Biology	Genetics
Comparative Anatomy	Marine Biology	Ecology

COURSES TAUGHT

BIO113	Introduction to Biology
BIO113L	Introduction to Biology Laboratory
BIO218	Organismal Diversity and the Environment
BIO218L	Organismal Diversity and the Environment Laboratory
BIO333	Marine Biology
BIO335	Developmental Biology
BIO335L	Developmental Biology Lab
BIO347	Human Development and Genetics
BIO 350	Senior Capstone Independent Research

EXTRACURRICULAR COURSES AND PANELS

Accepted Student Days: Mock Lecture	2022
Panelist	2021
CFE Faculty Excellence in Scholarship Series: Balancing Scholarship Expectations with a Heavy Course Load	
Accepted Student Days: Mock Lecture	2021
Elements of Teaching (Group facilitator)	2020
Summer Teaching Institute, Simmons College	2018
Elements of Teaching: Preparing for a Teaching Career in STEM	2018
Getting Active Learning Right	2017

PUBLICATIONS

Harrison, E.*, Chattapadhyay, S.*, Neka, G.*, Baskin, M.*, Richmond, N.*, Nguyen, Q.*, Wade, I.**, Anekal, A.**, and **Young, J.J.** (In Revision) Interaction between perfluoro-octanoic sulfonate and common antibiotics induces developmental anomalies and lethality in *Xenopus laevis*. *Dev. Dyn.*

Young, J. J. (2023). In preprints: of genitalia and six-legged mice. *Development (Cambridge)* **150**,.

Clancy, M.*, Wade, I.S.**, **Young, J.J.**, 2023. Facile methods for reusing laboratory plastic in developmental biology experiments. *Differentiation* 130, 1–6.
<https://doi.org/10.1016/J.DIFF.2022.11.001>

Royle, S.R. and **Young, J.J.**, 2021. A 5'HoxD-Gli3 balance in tetrapod axial polarity. *Curr. Biol.* **22**, R1487-R1490. *Invited review*

Royle, S.R., Tabin, C.J., **Young, J.J.**, 2021. Limb positioning and initiation: An evolutionary context of pattern and formation. *Dev. Dyn.* doi:10.1002/dvdy.308

Kong, N.R., Bassal, M.A., Tan, H.K., Kurland, J.V., Yong, K.J., **Young, J.J.**, Yang, Y., Li, F., Lee, J.D., Liu, Y., Wu, C.-S., Stein, A., Luo, H.R., Silberstein, L.E., Bulyk, M.L., Tenen, D.G., Chai, L., 2021. Zinc Finger Protein SALL4 Functions through an AT-Rich Motif to Regulate Gene Expression. *Cell Rep* 34, 108574. doi:10.1016/j.celrep.2020.108574

- Young, J. J.**, Grayson, P., Edwards, S. V and Tabin, C. J. (2019). Attenuated Fgf Signaling Underlies the Forelimb Heterochrony in the Emu *Dromaius novaehollandiae*. *Curr. Biol.* **29**, 3681-3691.e5. **(Highlighted Article)**
- Young, J. J.**, Grayson, P. and Tabin, C. J. (2019). Developmental Biology: Hox Timing Determines Limb Placement. *Curr. Biol.* **29**, R52–R54.
- Young, J. J.** and Tabin, C. J. (2017). Saunders’s framework for understanding limb development as a platform for investigating limb evolution. *Dev. Biol.* **429**, 401–408.
- Young, J.J.**, Kjolby, R.A.S., Kong, N.R., Monica, S.D. and Harland, R.M. (2014) Spalt-like 4 promotes posterior neural fates via repression of *pou5f3* family members in *Xenopus*. *Development*, **141**:1683-1693. **(Highlighted Article)**
- Young, J. J.** and R.M. Harland (2012) Targeted gene disruption with engineered zinc-finger nucleases (ZFNs). *Methods Mol Biol*
- Young, J.J.**, J.M. Cherone, Y. Doyon, I. Ankoudinova, F.M. Faraji, A.H. Lee, C. Ngo, D.Y. Guschin, D.E. Paschon, J.C. Miller, L. Zhang, E.J. Rebar, P.D. Gregory, F.D. Urnov, R.M. Harland, and B. Zeitler, (2011) Efficient targeted gene disruption in the soma and germ line of the frog *Xenopus tropicalis* using engineered zinc-finger nucleases *Proc Natl Acad Sci U S A*, **108**(17): p. 7052-7057.
- Stolfi, A., Gainous, T. B., **Young, J. J.**, Mori, A., Levine, M., and Christiaen, L. (2010). Early chordate origins of the vertebrate second heart field. *Science* **329**, 565-8.
- Ding, Y., Boguslawski, E. A., Berghuis, B. D., **Young, J. J.**, Zhang, Z., Hardy, K., Furge, K., Kort, E., Frankel, A. E., Hay, R. V., Resau, J. H., and Duesbery, N. S. (2008). Mitogen-activated protein kinase signaling promotes growth and vascularization of fibrosarcoma. *Mol Cancer Ther* **7**, 648-58.
- Depeille, P., **Young, J. J.**, Boguslawski, E. A., Berghuis, B. D., Kort, E. J., Resau, J. H., Frankel, A. E., and Duesbery, N. S. (2007). Anthrax lethal toxin inhibits growth of and vascular endothelial growth factor release from endothelial cells expressing the human herpes virus 8 viral G protein coupled receptor. *Clin Cancer Res* **13**, 5926-34.
- Young, J. J.**, Bromberg-White, J. L., Zylstra, C., Church, J. T*, Boguslawski, E., Resau, J. H., Williams, B. O., and Duesbery, N. S. (2007). LRP5 and LRP6 are not required for protective antigen-mediated internalization or lethality of anthrax lethal toxin. *PLoS Pathog* **3**, e27. ***indicates undergraduate student researcher**
- Van Gaest, A. L., Young, C. M., **Young, J. J.**, Helms, A. R., and Arellano, S. M. (2007). Physiological and behavioral responses of *Bathynnerita naticoidea* (Gastropoda : Neritidae) and *Methanoaricia dendrobranchiata* (Polychaeta : Orbiniidae) to hypersaline conditions at a brine pool cold seep. In "Mar Ecol-Evol Persp", Vol. 28, pp. 199-207.
- Liang, X., **Young, J. J.**, Boone, S. A., Waugh, D. S., and Duesbery, N. S. (2004). Involvement of domain II in toxicity of anthrax lethal factor. *J Biol Chem* **279**, 52473-8.

***indicates Simmons undergraduate student researcher **Indicates High School student researcher**

EDITORIAL POSITIONS

Guest Editor, *Frontiers in Cell and Developmental Biology - The Vertebrate Limb: Development, Evo-Devo, and Regeneration*. August 2023

MEETING ABSTRACTS

Invited Talks:

19th *Xenopus* International Conference, 2024. Cambridge Maryland. Insights into the mechanism of Hind limb initiation in *Xenopus laevis*.

EMBO Limb Development and Regeneration, 2019. Barcelona, Spain. Attenuated Fgf Signaling Underlies the Forelimb Heterochrony in the Emu *Dromaius novaehollandiae*. **John J. Young**, Phil Grayson, Scott V. Edwards, and Clifford J. Tabin. *Awarded best talk prize

Northeastern Society for Developmental Biology 2018. Woods Hole, MA Developmental mechanisms underlying forelimb heterochrony and reduction in the emu *Dromaius novaehollandiae*. **John J. Young**, Phil Grayson, Scott V. Edwards, and Clifford J. Tabin. *Awarded best talk 3rd prize

Phycological Society of America 2003 Experimental harvests of five species of macroalgae along the Oregon coast. **John J. Young**, Herczeg B, and Shapiro, L

Poster Presentations:

Society of Developmental Biology Meeting 2018. Developmental mechanisms underlying forelimb heterochrony and reduction in the emu *Dromaius novaehollandiae*. **John J. Young**, Phil Grayson, Scott V. Edwards, and Clifford J. Tabin.

Gordon Research Conference for Developmental Biology 2017. Developmental mechanisms underlying forelimb heterochrony and reduction in the emu *Dromaius novaehollandiae*. **John J. Young**, Phil Grayson, Scott V. Edwards, and Clifford J. Tabin.

Pan-American Society for Evolution and Developmental Biology Meeting 2015. Genomic and transcriptomic sequencing of the Great Pond Snail *Lymnaea stagnalis*. Alexander J. Brandt, **John J. Young**, Jessica B. Lyons, Daniel S. Rokhsar, and Clifford J. Tabin.

British Society of Developmental Biology Meeting 2013. The transcription factors *Sal-like 1* and *4* (*Sall1/4*) are direct Wnt targets and mediate neural patterning via repression of the stem cell factor *oct4*. **John J. Young**, Rachel A.S. Kjolby, Stefanie D. Monica, and Richard Harland.

Society of Developmental Biology Meeting 2012. The transcription factor *Sal-like 1* (*Sall-1*) is a direct transcriptional target of Wnt/beta-catenin signaling and regulates neural patterning along with morphogenesis. **John J. Young** and Richard Harland. *Awarded best student poster prize

Santa Cruz Developmental Biology Meeting 2008. Knockdown of three secreted wnt antagonists in the frog *Xenopus tropicalis* leads to loss of anterior structures. **John J. Young** and Richard Harland.

Bacillus ACT 2007. Developmental expression and role of the anthrax toxin receptor Tem8 in *Xenopus* **John J. Young** and Nick S. Duesbery.

Bacillus ACT 2005. Involvement of Domain II in toxicity of anthrax lethal factor. **John J. Young**, Liang, X., Boone, SA, Waugh, DS, and Duesbery, NS.

Deep Sea Biology Symposium 2003. Extreme salinity tolerance of *Methanoaricia dendrobranchiata* Blake (Polychaeta: Orbinidae). Alicia R. Helms and **John J. Young**.

YOUNG LAB STUDENT PRESENTATIONS

Invited Talks:

Eastern New England Biological Conference 2024: Interaction between perfluoro-octanoic sulfonate and common antibiotics induce developmental anomalies and lethality in *Xenopus laevis*. Shreya Chattapadhyay* and **John J. Young**

Eastern New England Biological Conference 2024: Insights into the mechanism of hind limb induction in *Xenopus laevis*. Milena Chaufan* and **John J. Young**

Northeastern Society for Developmental Biology Regional Meeting 2023. Investigating the role of Cereblon in vertebrate development. Ekaterina Konshina*, and **John J. Young**

Eastern New England Biological Conference 2023. Investigating the role of Cereblon in vertebrate development. Ekaterina Konshina*, and **John J. Young**

Eastern New England Biological Conference 2023. Early exposure to PFOS results in cellular mass formation and delamination of epidermal cells in *Xenopus laevis*. Ganad Neka* and **John J. Young**

Eastern New England Biological Conference 2023. Chimeric embryos reveal anterior-posterior axis patterns in early *Xenopus laevis* embryos. Vibhuti Naik* and **John J. Young**

Northeastern Society for Developmental Biology Regional Meeting 2022. Exposure to the environmental contaminant PFOS causes cellular mass formations in the fin of *Xenopus* tadpoles. Emma Harrison*, Maya Baskin*, and **John J. Young** *Awarded best undergraduate talk prize

University of Massachusetts, Lowell Sustainability Symposium 2022. Methods for reusing laboratory plastic in a developmental biology lab. Maggie Clancy* and **John J. Young**

Poster Presentations:

Northeastern Society for Developmental Biology Regional Meeting 2024. Insights into the mechanism of hind limb induction in *Xenopus laevis*. Milena Chaufan* and **John J. Young**

Northeastern Society for Developmental Biology Regional Meeting 2024. Interaction between perfluoro-octanoic sulfonate and common antibiotics induce developmental anomalies and lethality in *Xenopus laevis*. Shreya Chattapadhyay* and **John J. Young**

Northeastern Society for Developmental Biology Regional Meeting 2023. Early exposure to PFOS results in cellular mass formation and delamination of epidermal cells in *Xenopus laevis*. Ganad Neka* and **John J. Young** *Awarded an undergraduate best poster prize

Northeastern Society for Developmental Biology Regional Meeting 2022. Facile methods for reusing laboratory plastic in developmental biology experiments. Maggie Clancy* and **John J. Young**

Society for Developmental Biology Annual Meeting 2021. Effects of perfluoroalkyl substances on the embryonic development of *Xenopus laevis*. Maya Baskin, Maggie Clancy*, and **John J. Young**

Society for Developmental Biology Annual Meeting 2021. Facile methods for reusing laboratory plastic in developmental biology experiments. Maggie Clancy* and **John J. Young**

*indicates Simmons undergraduate student

INVITED LECTURES

Limb development and initaiton in <i>Xenopus</i> Cell and Developmental Biology of <i>Xenopus</i> Cold Spring Harbor Laboratories course Cold Spring Harbor, NY	Apr. 2024
Insights into the mechanism of hind limb induction in <i>Xenopus laevis</i> Morphogenesis Seminar Series Department of Physiology, Development, and Neuroscience University of Cambridge, UK	Feb. 2024
Amphibian limb development is a combination of teleost and amniote mechanisms Embryology Course lecture Marine Biological Laboratory Woods Hole, MA	Jun. 2023
Limb development and evolution in tetrapods Embryology Course lecture Marine Biological Laboratory Woods Hole, MA	Jun. 2022
Forelimbs, Flight and Froglegs Evo-Devo Seminar Union College Schenectady NY	Feb. 2022
Heterochrony in limb development in avians and anurans Current Topics in Evolution and Zoology Seminar Univisity of Basil	Nov. 2021

Basil, CH

Forelimbs, Flight and Froglegs Jun. 2021
Embryology Course lecture
Marine Biological Laboratory
Woods Hole, MA

GRANTS AND AWARDS

MRI: Obtain a laser scanning confocal microscope at a women's 2023
centered undergraduate institution. -NSF-Not funded
Unraveling the cellular and genetic mechanisms that underlie 2021-2025
anuran limb development -NSF-(\$315,700)
Unraveling the cellular and genetic mechanisms that underlie 2021
anuran limb development -NIH-Withdrawn
Simmons University Passionate Leader Project (Adviser) 2020
Simmons University Funds For Research (\$2499) 2019
Ruth L. Kirschstein National Research Service Award (NIH) 2015-2018
Neil Richmond Scholarship, University of Oregon 2003

HONORS

Best Talk award, EMBO Limb Development and Regeneration 2019
3rd Prize Postdoc talk, NESDB 2018
Best Student Poster Award, SDB 2012 2012
Best Student Talk, Genetics, Genomics, and Development symposium
UC Berkeley 2012
Best Student Poster, GGD retreat, UC Berkeley 2011
Best Student Poster, GGD retreat, UC Berkeley 2009
Graduated Cum Laude, Aquinas College 2001

COMMITTEES

Simmons University
Undergraduate Administrative Board (Chair) 2023-Present

Undergraduate Dean Search Committee 2022-2023

Assistant Provost Search Committee 2022-2023

Institutional Animal Care and Use Committee 2022-Present
Simmons University

Review Panelist 2022
National Science Foundation Postdoctoral
Research Fellowship in Biology Proposal

Faculty Adviser 2020-Present
Biology Liaison
Simmons University

Dissertation Committee 2019-2023
Samantha Royle, Harvard University

Student representative
Systems biology faculty search committee 2012

Student representative
Genetics, genomics, and development admissions committee 2010

JOURNAL ARTICLE REVIEWER

Developmental Biology Elsevier
Cells Tissues Organs Karger
Developmental Dynamics Wiley
Current Biology Cell Press
EMBO Reports Nature Publishing Group
Journal of Morphology Wiley
Proceedings of the National Academy of Sciences NAS
Course Source

VOLUNTEER WORK.

-Backyard Biology Program 2020-present
Organized biological experiments with
middle school aged students at Boston
housing communities