

A. Personal**Kacy Lynn Gordon**

Department of Biology, CB# 3280
 UNC-Chapel Hill, Chapel Hill NC 27599-3280
 kacy.gordon@unc.edu (215)595-6510

B. EDUCATION**The University of Chicago**, Chicago, Illinois

Ph.D. in Organismal Biology and Anatomy

2014

Dissertation: *Evolution of gene regulation in nematodes:**Inferring complex relationships between sequence and functional evolution*

Advisor: Dr. Ilya Ruvinsky

Dartmouth College, Hanover, New Hampshire

2006

A.B., *magna cum laude* with High Honors in the major of Genetics, Cell, and Developmental BiologyHonors Thesis: *Molecular insights into the evolutionary history of the Rotifera*

Advisor: Dr. Kevin Peterson

C. PROFESSIONAL EXPERIENCE**The University of North Carolina at Chapel Hill**, Chapel Hill, North Carolina

July 2019-present

Assistant Professor

Department of Biology

Duke University, Durham, North Carolina

2015-2019

Ruth L. Kirschstein NRSA Postdoctoral Fellow

2016-2017

Advisor: Dr. David Sherwood

Department of Biology

Dartmouth College, Hanover, New Hampshire

2007-2008

Lab technician, Dr. Kevin Peterson Lab

Department of Biological Sciences

National Human Genome Research Institute, NIH, Bethesda, Maryland

Summer 2005, 2006-2007

Summer Intramural Research Training Award, later Lab technician, Dr. Yingzi Yang Lab

D. HONORS**NSF CAREER Award**, NSF Directorate for Biological Sciences

2025-2030

Dartmouth College, Invited Alumna Speaker, Celebrating 25 Years of Krehbiel Scholars

October 2024

RJ Reynolds Foundation Junior Faculty Development Award

2022

University of North Carolina-Chapel Hill, University Teaching Award, Finalist

October 2021

Ruth L. Kirschstein NRSA Postdoctoral Fellowship, NIH F32

2016-2019

National Science Foundation Graduate Research Fellowship

Awarded 2010

University of Chicago Biological Sciences Divisional Teaching Award

2010

University of Chicago Developmental Biology Training Grant, Appointed

2009-2010

Christopher Reed Honors Thesis Award, Dartmouth College Department of Biological Sciences

2006

E. BIBLIOGRAPHY AND PRODUCTS OF SCHOLARSHIP**Refereed papers (currently under review)**

Kinney B, Menjivar-Hernandez J, Koitz F, Grinevich D, Baseliros M, Hammell CM, **Gordon KL**. FLYWCH transcription factors act in a LIN-42/Period autoregulatory loop during gonad migration in *C. elegans*. (2025) bioRxiv. <https://doi.org/10.1101/2025.07.10.664215> **In revision at *Genetics***.

-This work was performed entirely in the Gordon lab using unpublished strains from the Hammell lab.

Sullivan KA, Glover JS, Zeb Q, **Gordon KL**, Engevik MA, Hartman JH. *Acinetobacter calcoaceticus* pathogenesis in *Caenorhabditis elegans* via production of a virulent secreted factor. (2025). **In revision at *Current Research in Microbial Sciences***.

-I devised and worked with a student to perform a genomic analysis of pathogenicity protein candidates.

Refereed papers

Koitz FA, Miller CP, Kinney B, **Gordon KL**. (2026) Pre-dauer starvation rapidly and reversibly reduces niche proliferative signaling to the *C. elegans* germ line. *Development dev.204972*.

<https://doi.org/10.1242/dev.204972>

-This work was performed entirely in the Gordon lab.

Li, X and **Gordon KL**. (2025) MIG-21 is a novel regulator of Wnt and Netrin signaling in gonad migration in *C. elegans*. *PLOS Genetics* 21(9): e1011866. <https://doi.org/10.1371/journal.pgen.1011866>

-This work was performed entirely in the Gordon lab.

Ameyaa-Sakya A, Harris TR, Clarke CE, David R. McMullin DR, **Gordon KL**, Sherwood DR, Hartman JH, Rand AA. (2025). Human mitochondrial CYP2E1-mediated styrene metabolism increases oxidative stress and impairs antioxidant rescue in *Caenorhabditis elegans*. *Comparative Biochemistry and Physiology, Part C: Toxicology and Pharmacology*. Volume 298, 110319. <https://doi.org/10.1016/j.cbpc.2025.110319>

-I designed and generated transgenic *C. elegans* strains for this study.

Merritt RA*, Heaney K, Shuchi N, **Gordon KL**, Trammell SR. (2025). Mid-IR Imaging Can Detect Waste Heat Production in the Nematode *Caenorhabditis elegans*. *Journal of Biophotonics* 18, no. 7: e202500078, <https://doi.org/10.1002/jbio.202500078>.

*first author is Gordon Lab M.S. student, and the work was supported by Gordon's R35 with Gordon as co-corresponding. 50% advising effort.

Singh N*, Scott K*, Proctor J, **Gordon KL**. (2025). An RNAi screen of Rab GTPase genes in *C. elegans* reveals that morphogenesis has a higher demand than stem cell niche maintenance for *rab-1* in the somatic cells of the reproductive system, *G3 Genes|Genomes|Genetics*.

<https://doi.org/10.1093/g3journal/jkaf085> (* indicates equally contributing authors)

-This work was performed entirely in the Gordon lab.

Gonzalez HC, Misare KR, Mendenhall TT, Wolf BJ, Mulholland PJ, **Gordon KL**, Hartman JH. Transgenic expression of human cytochrome P450 2E1 in *C. elegans* and rat PC-12 cells sensitizes to ethanol-induced behavioral and mitochondrial effects. 2024. *Biochem Biophys Res Commun*. doi: 10.1016/j.bbrc.2024.150735

-I designed and generated transgenic *C. elegans* strains for this study.

Singh N, Zhang P, Li KJ, **Gordon KL**. (2024). The Rac pathway prevents cell fragmentation in a nonprotrusively migrating leader cell during *C. elegans* gonad organogenesis. *Current Biology*. <https://doi.org/10.1016/j.cub.2024.04.073> This work was performed entirely in the Gordon lab with a previously unpublished strain made by P. Zhang from the Goldstein lab.

- **Comment in:** Pani, A. (2024). Organogenesis: How active forces maintain integrity of migrating cells under pressure. *Current Biology*. <https://doi.org/10.1016/j.cub.2024.06.019>

Misare KR, Ampolini EA, Gonzalez HC, Sullivan KA, Li X*, Miller C*, Sosseh B*, Dunne JB, Voelkel-Johnson C, **Gordon KL**, Hartman JH. (2023). The consequences of tetraploidy on *Caenorhabditis elegans* physiology and sensitivity to chemotherapeutics. *Sci Rep* **13**, 18125. <https://doi.org/10.1038/s41598-023-45225-w>

*These coauthors are Gordon Lab members. With these lab members, we characterized the gonad anatomy and developmental scaling of tetraploid worms, ~15% of the study.

Li X, Singh N, Miller C, Washington I, Sosseh B, **Gordon KL**. (2022). The *C. elegans* gonadal sheath Sh1 cells extend asymmetrically over a differentiating germ cell population in the proliferative zone *eLife*. **11**:e75497. <https://doi.org/10.7554/eLife.75497> (Published in the journal era of *eLife*, not a refereed preprint.)

-This work was performed entirely in the Gordon lab.

Gordon KL. (2020). Recent advances in the genetic, anatomical, and environmental regulation of the *C. elegans* germ line progenitor zone. *J. Dev. Bio.*, 8(3), 14; <https://doi.org/10.3390/jdb8030014>

- Featured article, invited by Special Issue Editor Dr. Morris Maduro

Gordon KL*, Zussman JW, Li X, Martin C, Sherwood DR. (2020). Stem cell niche exit in *C. elegans* via active orientation and segregation of daughter cells by a cryptic cell outside the niche. *eLife*.

DOI: [10.7554/eLife.56383](https://doi.org/10.7554/eLife.56383). *Corresponding author. (Published by the journal *eLife*, not refereed preprint.)

- **Comment in:** Cinqin A and Cinqin O. Stem cells: More than just a pool. *eLife* 2020;9:e61397 DOI: [10.7554/eLife.61397](https://doi.org/10.7554/eLife.61397)

Hartman J, Richie C, **Gordon K**, Mello D, Castillo P, Zhu A, Wang Y, Hoffer B, Sherwood D, Meyer J, Harvey B. (2019). MANF deletion abrogates early larval *Caenorhabditis elegans* stress response to tunicamycin and *Pseudomonas aeruginosa*. *EJCB*. <https://doi.org/10.1016/j.ejcb.2019.05.002>

Gordon KL*, Linden-High LM*, Payne SG*, Pani AM, Goldstein B, Hubbard JA, Sherwood DR. (2019). Ectopic germ cells induce niche-like E-cadherin- and L1CAM-mediated cell enwrapment by body wall muscle. *Current Bio*. 29(5): 823-833. (* indicates equally contributing authors)

- **Comment in:** Kelley C, Cram E. Stem cells: Muscle cells enwrap escaped germline stem cells in *C. elegans*. (2019). *Current Bio*. 29(5) R150-R152.

Hartman, J, Smith L, **Gordon K**, Laranjeiro R, Driscoll M, Sherwood D, Meyer J. (2018). Swimming exercise and transient food deprivation in *Caenorhabditis elegans* promote mitochondrial maintenance and protect against chemical-induced mitotoxicity. *Scientific Reports*. 8(1): 8359. doi: 10.1038/s41598-018-26552-9

Naegeli KM, Hastie E, Wang Z, Keeley DP, **Gordon KL**, Pani AM, Kelley LC, Morrisey M, Chi Q, Goldstein B, Sherwood DR (2017). Cell invasion in vivo via rapid exocytosis of a transient endolysosome-derived membrane domain. *Dev Cell*. 43(4): 403–417.

Linden, LM, **Gordon KL**, Pani AM, Payne SG, Garde A, Burkholder D, Chi Q, Goldstein B, Sherwood DR (2017). Identification of regulators of germ stem cell enwrapment by its niche in *C. elegans*. *Dev Biol*. 429(1):271-284.

Gordon KL, Arthur RK, Ruvinsky I (2015). Phylum-level conservation of regulatory information in nematodes despite extensive non-coding sequence divergence. *PLoS Genet* 11(5): e1005268.

Barrière A, **Gordon KL**, Ruvinsky I (2012). Coevolution within and between regulatory loci can preserve promoter function despite evolutionary rate acceleration. *PLOS Genet* 8(9): e1002961.

- **Comment in:** Stower, H. Coevolution Revealed. *Nat Rev Genet* 13(758).

Gordon KL, Ruvinsky I (2012). Tempo and mode in evolution of transcriptional regulation. *PLOS Genet* 8(1): e1002432.

Barrière A*, **Gordon KL***, Ruvinsky I (2011). Distinct functional constraints partition sequence conservation in a *cis*-regulatory element. *PLOS Genet* 7(6): e1002095. (* indicates equally contributing authors)

Jackson DJ, Meyer NP, Seaver E, Pang K, McDougall C, Moy VN, **Gordon, KL**, Degnan BM, Martindale MQ, Burke RD, Peterson KJ. (2010). Developmental expression of COE across the metazoa supports a conserved role in neuronal cell-type specification and mesodermal development. *Development Genes and Evolution*, 220(7-8), 221-234.

Other: Refereed conference proceedings

Merrit RA*, McGinnis CL, **Gordon KL**, Trammell SR. (2023). Mid-IR imaging as a new tool to investigate waste heat production in the nematode. *Proceedings Volume 12391, Label-free Biomedical Imaging and Sensing (LBIS) 2023; 1239105 (2023)*. Event: SPIE BIOS, 2023, San Francisco, California, United States <https://doi.org/10.1117/12.2650182>

*first author is Gordon Lab M.S. student, and the work was completed in the Gordon lab with Gordon as co-corresponding.

Other: Invited commentary

Gordon KL. (2021). News &Views: Fatal decision made under pressure. *Nat. Phys*. <https://doi.org/10.1038/s41567-021-01239-7>

Other: Invited talks while at UNC

Ecology and Evolution Seminar, Virginia Tech	January 2026
Cramer Seminar, Dartmouth College Department of Biological Sciences	October 2024
The University of Chicago Developmental Biology Training Grant Symposium	April 2024
Biochemistry and Molecular Biology Seminar, Medical University of South Carolina	November 2023
Department of Biology Seminar, UVA	October 2023
Development Colloquium (Remote), Princeton University	April 2022
Houston Area Worm Club (Remote)	June 2021
Integrative Biology Departmental Seminar (Remote), University of Wisconsin, Madison	March 2021

F. TEACHING ACTIVITIES

Courses taught:

Biology 340, Introduction to Developmental Biology, UNC

Biol 340.001 Spring 2026 (25 students)

Biology 440, Stem Cell Biology, UNC

Biol 440.001 Fall 2025 (34 students)

Biol 440.001 Summer 2025 (20 students), Director of Science in Sevilla Study Abroad (Seville, Spain)

Biol 440.0001 Spring 2025 (32 students)

Biol 440.0001 Fall 2024 (31 students)

Biol 440.001 Spring 2024 (37 students)

Biol 440.001 Summer 2023 (28 students), Director of Science in Sevilla Study Abroad (Seville, Spain)

Biol 440.001 Fall 2022 (38 students)

Biol 440.001 Fall 2021 (40 students)

Biol 440.001 Fall 2020 (33 students)

Biology 205, Cell and Developmental Biology, UNC

Biology 205.006 Spring 2023 (236 students)

Biology 205.006 Spring 2022 (231 students)

Biology 205.007 Spring 2021 (231 students)

Biology 205.007 Spring 2020 (188 students)

Graduate students supervised:

Fred Koitz (Genetics and Molecular Biology, 2022 start)

Noor Singh (Genetics and Molecular Biology, 2021 start)

Xin Li (Quantitative Biology, 2021 start)

Ryan Merritt (QBio, M.S. 2024)

M.S. Thesis: Thermal Imaging provides a window into the metabolism of *C. elegans*

BBSP Rotation students: Lily McKay, Mark Hazelbaker, Sean Johnson, Karla Troncoso, Bailey DeJesus, Ana Cunningham

Dissertation Committees: Jack Linehan (A. Maddox, QBio, chair), Nila Pazhayam (J. Sekelsky, GMB), Alan Edwards (P. Maddox, Biology, chair), S. Ethan Bedsole (C. Shiau, QBio, chair)

Undergraduates Honors Theses:

Kayah Takei (2025): Molecular Approaches to Understanding Wnt Signaling and Integrin Dynamics in *C. elegans* Development

Karen Li (2023): CED-12/ELMO prevents fragmentation of a non-protrusively migrating leader cell in *C. elegans*

Ryan Merritt (2022): Thermal Imaging Provides a Window Into the Metabolism of *C. elegans*

BIOL 395: Jason Menjivar-Hernandez (2023-2024), Alexi Callinicos (2024), Kayah Takei (2024-2025), Karen Li (2023-2024), Madonna Baselios (2023), Nadeem Ramadan (2020), India Washington (2021-22), Ryan Merritt (2021-22), Jayce Proctor (2022), India Washington (2022), Bintou Sosseh (2023).

BIOL 395 Sponsor by school year:

Maggie Furco, Xiaoyuan Li, Vanessa Walcott (2024-2025)

David Scott Weaver, Ava Reese, Julianna Beltz, Iris Turksonmez, Sophie Dhrolia, Shivam Patel (2023-2024)

Andrew Phan (2021-2022)

Sophie Ruth Taylor, Emily Grace Clark, Meredith Grace Chambers (2020-2021)

Work-study: Mridul Uppal (2022-2025), Bintou Sosseh (2021-2022), India Washington (2019-2021), Jada Enoch (2019).

Postdoctoral scholars

Dr. Brian Kinney (2022-2025). Current: Assistant Professor, Louisburg College, Louisburg, NC.

Dr. Kayt Scott (2021-2022). SPIRE Fellow. Current: Science writing.

Dr. Sheldon Lawrence (2020-2021). SPIRE Fellow. Current: Assistant Professor, Oxford College, Oxford, GA.

G. GRANTS

NSF CAREER Award: Stress, Recovery, Regeneration, and Resilience in Reproduction Principal Investigator, \$1,039,048, 49% research effort	2025-2030
NIGMS R35GM147704: Extreme cell growth in support of stem cell proliferation and niche exit Principal Investigator, \$1,911,070, 51% research effort	2022-2027
-3R35GM147704 Diversity Supplement for GMB student F. Koitz (\$106,839)	2023-2025
RJ Reynolds Foundation Junior Faculty Development Award , Recipient, (\$10,000)	2022
Ruth L. Kirschstein NRSA Postdoctoral Fellowship , NIH F32 (\$114,132)	2016-2019
National Science Foundation Graduate Research Fellowship (\$126,000)	Awarded 2010

H. PROFESSIONAL SERVICE

Grant reviews

Fellowships: Cell Biology, Developmental Biology, and Bioengineering	2026
MRAC panel, NIGMS, NIH	2024
NSF Biology Directorate, MCB, panel not permitted to be disclosed	2022, 2024
NIH special emphasis panel Cell, Molec and Integrative Reproduction (Early Career Reviewer)	2021
NSF special reviewer	2022

Journals reviewed for 2020-present

Nature Communications, Nature Physics, Genetics, G3, Current Biology, Developmental Biology, Scientific Reports, Molecular Biology and Evolution, Scientific Reports, Plos One

UNC-Chapel Hill Department of Biology

QBio Graduate Committee	2022-2024
Biology Chair's Advisory Committee, Assistant Professor Representative	2021-2024
VITAE Committee for targeted hires, appointed	2021-2024
Search Committee for Biology Microscopy Core Director, recruited Dr. Nat Prunet	2021/2022
Curriculum overhaul, faculty team for learning outcomes in BIOL 102A Fundamentals in MCB	2020

UNC-Chapel Hill Biological and Biomedical Sciences Program 2020-present

Molecular Biosciences admissions committee member, co-chair (2025)

UNC-Chapel Hill Curriculum in Genetics and Molecular Biology 2020-present

Executive Committee

Faculty Advisor of Student Groups 2022-present

Health Link Society
Chapel Hill Alt Protein Project
Foundation for International Medical Relief of Children

Duke University Postdoctoral Association 2016-2019

President, Policy Chair

Worked with postdocs and administrators on projects related to health, dependent care, and retirement benefits for postdocs. Served on steering committee to develop professionalism guidelines for postdoc-mentor relationships.

Professional development training activities:

UNC-Chapel Hill Center for Faculty Excellence

Summer Institute on College Teaching 2023

UNC-Chapel Hill TEAM ADVANCE 2019-2020, 2022-2023

Peer Mentor Circle for Women in STEM, Leadership workshop

UNC-Chapel Hill Office of Graduate Education Mentoring Workshop November 2019

Participated in eight hours of training for graduate, undergraduate, and postdoctoral mentoring

UNC-Chapel Hill STEM Pride Safe Zone Allies Training

Participated in four-hour training session for allyship, listed as a Safe Zone ally

March 1, 2026
September 2019