Yelena Bernadskaya, Ph.D.

Assistant Professor, University of Massachusetts, Amherst
Lab Website: https://yelenabern.owlstown.net/
LinkedIn: https://www.linkedin.com/in/yelena-bernadskaya/

Education

Rutgers University/UMDNJ *Piscataway, NJ*
Ph.D. Cell and Developmental Biology *2012*
New York University *New York, NY*
M.S. Biology *2006*
Long Island University *Brooklyn, NY*
B.S. Biology, Summa Cum Laude *2004*

Research Experience

University of Massachusetts, Amherst
Assistant Professor *2025 – Present*
Biology Department

- Coordinated cell behavior
- Regulation of morphogenesis
- Role of collagens in development

New York University – Department of Biology *New York, NY*
Senior Research Scientist *01/2021 – 08/2024*
Advisers: Profs. Lionel Christiaen, Ph.D./Alex Mogilner, Ph.D.

- Study coordinated behavior of cells during chordate morphogenesis.
- Development of optogenetic techniques to be used in the study of chordate embryogenesis.
- Oversight of lab personnel and administrative duties
- Application for external funding
- Recruit and mentor new lab members and monitor progress towards degree.

New York University – Department of Biology *New York, NY*
Postdoctoral Associate *06/2012 – 12/2020*
Adviser: Prof. Lionel Christiaen, Ph.D.

- Regulation of collective cell migration and polarity during cardiopharyngeal precursor migration in *Ciona robusta*.
- Studying the role of trafficking regulators in the establishment and maintenance of cell polarity.
- Modeling cell migration and tissue interactions using live microscopy and computational techniques.
- Mentoring undergraduate, master, and Ph.D. students in molecular biology and monitoring progress towards degree.

Rutgers University/UMDNJ *Piscataway, NJ*
Ph.D. Student/Research Assistant *09/2006 – 06/2012*
Adviser: Prof. Martha C. Soto, Ph.D.

- Arp2/3-dependent branched actin regulates cell migration, junctional establishment and maintenance, and responds to axonal guidance cues during *C. elegans* morphogenesis.
- Examining role of actin regulators on establishment of epithelial cell polarity.
- Studying the process of cell junction establishment and maturation.

New York University - Department of Developmental Genetics *New York, NY*
M.S. Student/Lab Assistant *09/2004-08/2006*
Adviser: Stephen Small, Ph.D.

- Studied microRNA developmental patterning of *Drosophila* embryos.
- Produced transgenic Drosophila strains.

Community College of New York *New York, NY*
Summer Intern *2004*
Adviser: Prof. Amy Berkov, Ph.D.
- Studied the relationship of Nitidulidae beetles and symbiotic gut yeasts.
- Dissected, cultured, and identified gut yeast of New York City area beetles by DNA sequencing.

Teaching Experience

Graduate level courses:
Adjunct Instructor, Spring 2023 – 2024
BIOL-GA.1002 Bio Core II: Cellular Systems - Instructor of record

Adjunct Instructor, Spring 2021 – 2022
BIOL-GA.1002 Bio Core II: Cellular Systems - Team taught.

Undergraduate level courses:
Spring 2026 - 27
Biology 559: Cellular and Molecular Biology II - Instructor of record

Fall 2026
Biology 401: Great Papers - Instructor of record

Adjunct Instructor, 2005-2006
New York University

Research Support

Current
SPARC Tier 1(Co-PI with Andreas Buttenschoen) 2026-2027
Mechanics of Collective Cell Behavior: An Integrated Computational-Experimental Approach

Pending

Completed
NIH R01 HL108643-12 (Key personnel/Co-PI) 2020-2024
Cellular determinants of cardiopharyngeal multipotency and early fate choices

NIH grant F32 GM108369-01A1 (PI) 2014-2016
FoxF/FGF/RhoDF contributes to the polarization and migration of the trunk ventral cells, connecting the cardiac GRN to developmental cell behaviors.

Publications

1. **Bernadskaya, YY.,** Tjarnberg, A., Kuan, A., Brandenberg, J., Zhang, P., Wiechecki, K., Kaplan, N., Failla., M., Bikou., M., Madilian, O., Wang, W., Christiaen, L. (2025) Cell cycle-driven transcriptome maturation confers multilineage competence to cardiopharyngeal progenitors. EMBO. PMID: 41184589

2. Copos, C., Sun, Y.H., Zhu, K., Zhang, Y., Reid, B., Draper, B., Lin, F., Yue, H., **Bernadskaya, YY.**, Zhao, M., Mogilner, A. (2025) Galvanotactic directionality of cell groups depends on group size. PNAS. PMID: 40392857

3. Sun, Y., Reid, B., Zhang, Y., Zhu, K., Ferreira, F., Estrada, A., Sun, Y., Draper, BW., Yue, H., Copos, C., Lin, F., **Bernadskaya, YY.,** Zhao., M., Mogilner., A. (2023) Electric field-guided collective motility initiation of large epidermal cell groups. MBoC. PMID: 36989037

4. **Bernadskaya, Y.,** Yue, H., Copos. C., Christiaen, L., Mogilner, A. (2021) Supracellular organization confers directionality and mechanical potency to migrating pairs of cardiopharyngeal progenitor cells. eLife, PMID: 34842140

5. **Bernadskaya, Y.,** Brahmbhatt, S., Gline, S.E., Wang, W., Christiaen, L. (2019) Dual functions of Discoidin domain receptor coordinate cell-matrix adhesion and collective polarity in migratory cardiopharyngeal progenitors. Nature Communications. PMID: 30610187

6. Sasidharan, S., Borinskaya, S., Patel, F., **Bernadskaya, Y.,** Mandalapu, S., Agapito, M., Soto, M. (2017) WAVE regulates Cadherin junction assembly and turnover during epithelial polarization. Dev. Bio. PMID: 29223862

7. **Bernadskaya, Y.,** Christiaen, L. (2016) Transcriptional control of developmental cell behaviors. Annual Review of Cell Developmental Biology. PMID: 27501446

8. Gline, S.E., Kaplan, N., **Bernadskaya, Y.,** Abdu, Y., Christiaen, L. (2015) Surrounding tissues canalize motile cardiopharyngeal progenitors towards collective polarity and directed migration. Development. PMID: 25564651

9. **Bernadskaya, Y.Y.,** Wallace, A., Nguyen, J., Mohler, W.A., Soto, M.C. (2012) UNC-40/DCC, SAX-3/Robo and VAB-1/Eph Polarize F-actin During Embryonic Morphogenesis by Regulating the WAVE/SCAR Actin Nucleation Complex. PLoS Genetics. PMID: 22876199

10. **Bernadskaya, Y.Y.,** Patel, F.B., Hsu, H, and Soto, M.C. (2011) Arp2/3 promotes junction formation and maintenance in the *C. elegans* intestine by regulating membrane association of apical proteins. Mol Biol Cell. PMID: 21697505

11. Patel F.B., **Bernadskaya, Y.Y.,** Chen, E., Jobanputra, A., Pooladi, Z., Freeman, K.L., Gally, C., Mohler, W.A., Soto, M.C. (2008) The WAVE/SCAR complex promotes polarized cell movements and actin enrichment in epithelia during *C. elegans* embryogenesis. Dev. Bio. PMID: 18938151

Platform Presentations, Invited Seminars, and Panels

Platform Presentations

1. Stick together: ECM sensor drives multi-tissue collective cell behavior onset during morphogenesis. Ria Deshpande, Nadia Guevara, **Yelena Bernadskaya.** Mechanobiology of Tissue Morphogenesis and Disease, October 2025.

2. Enhanced navigation of embryonic micro-environments through cell force integration. **Yelena Bernadskaya**, Haicen Yue, Selena Gupta, Lionel Christiaen, Alex Mogilner. Invited speaker, 12th International Tunicate Meeting. July 2024.

3. Polarization and directionality of directed cell migration. **Yelena Bernadskaya,** Haicen Yue, Selena Gupta, Calina Copos, Lionel Christiaen, Alex Mogilner. 82nd Annual Meeting of the Society for Developmental Biology. July 2023.

4. Better together: polarization and directionality of directed cell migration. **Yelena Bernadskaya,** Haicen Yue, Selena Gupta, Calina Copos, Lionel Christiaen, Alex Mogilner. Gordon Research Conference, Directed Cell Migration. January 2023.

5. Better together: Polarization and directionality of directed cell migration. **Yelena Bernadskaya**, Haicen Yue, Alex Mogilner, Lionel Christiaen. CSHL Cell Modeling and Dynamics Meeting, May 2021.

6. Better together: Polarization and directionality of directed cell migration. **Yelena Bernadskaya,** Haicen Yue, Alex Mogilner, Lionel Christiaen. Cell Migration and Morphogenesis Meeting, March 2021.

7. Adhesive forces promote effective organization, movement, and leader/trailer cell state during collective cell migration. **Yelena Bernadskaya,** Haicen Yue, Alex Mogilner, Lionel Christiaen. Cell Migration Seminars, August 2020.

8. Coordination of cell matrix adhesion and polarity during collective cell migration. **Yelena Bernadskaya,** Saahil Brahmbhatt, Stephanie E. Gline, Wei Wang, Lionel Christiaen. Gordon Research Conference, Directed Cell Migration, January 2019.

9. Dual function of the collagen receptor DDR in specifying cell identity and regulating cell adhesion during cardiopharyngeal precursor migration. **Yelena Bernadskaya,** Saahil Brahmbhatt, Stephanie E. Gline, Wei Wang, Lionel Christiaen. 9th International Tunicate Meeting, July 2017, NYU.

10. DDR regulates collective cell migration and antagonizes VEGFR to maintain TVC leader/trailer polarity during *Ciona* development. **Yelena Bernadskaya,** Stephanie E. Gline, Lionel Christiaen. 75th Society for Developmental Cell Biology Meeting, Boston USA, August 2016.

11. RTKs regulate collective cell migration and cell-cell interactions of TVCs during Ciona development. **Yelena Bernadskaya,** Stephanie E. Gline, Lionel Christiaen. 8th International Tunicate Meeting, July 2015.

12. Three axonal guidance pathways help polarize the actin cytoskeleton during embryonic cell migration. **Yelena Bernadskaya,** Andre Wallace, Jillian Nguyen, William Mohler, Martha Soto. C. elegans Development, Cell Biology, and Gene Expression Meeting, June 2012.

13. Arp2/3-based regulation of junction dynamics during morphogenetic cell movements and polarization. **Yelena Bernadskaya,** Falshruti Patel, Martha Soto. Northeast Regional Society of Developmental Biology Meeting, April 2010.

14. The Wave/Scar Complex is Required for the Maintenance of Epithelial Apical/Basal Polarity in *C. elegans* Embryos. Falshruti Patel and **Yelena Bernadskaya,** Kristy Freeman, William Mohler, Martha Soto. *C. elegans* Development & Evolution Meeting, 2008.

Invited Seminars and Guest Lectures

1. Understanding emergent collective cell behavior in animal development: insights from the cardiogenic lineage of *Ciona robusta.* **Yelena Bernadskaya.** Hosted by Prof. Billie Swalla, University of Washington, October 10th, 2024.

2. Xenobots and the loss of science history. **Yelena Bernadskaya.** Hosted by Dr. Spiro Condos for the Darwin Day Lecture Series of The Secular Humanist Society of New York. February 11th, 2024.

3. Understanding emergent collective cell behavior in animal development: insights from the cardiogenic lineage of *Ciona robusta.* **Yelena Bernadskaya.** Hosted by Prof. Martha Soto, Rutgers University, April 26th 2023.

4. Laying down the tracks: How sensing the extracellular matrix keeps cells moving in the right direction. **Yelena Bernadskaya** Hosted by Prof. Andre Wallace at Fairleigh Dickinson University, April 13th 2017.

5. Guided cell migration and morphogenesis: an integrated perspective. **Yelena Bernadskaya.** Developmental Biology Guest Lecture hosted by Prof. Lionel Christiaen at NYU, 2014

6. Establishment and maintenance of apical epithelial domain by regulators of branched actin: how to build a worm. **Yelena Bernadskaya.** Hosted by Prof. Spencer Mass at SUNY New Paltz, Nov. 2011

Invited Panel Appearances

1. Anya: A Genetic Mystery Screening and Q&A. **Yelena Bernadskaya,** panelist at the Philp K. Dick Film Festival, March 8th, 2020. https://www.thephilipkdickfilmfestival.com/sunday-feature-1

2. Postdoctoral Job Search Panel. **Yelena Bernadskaya,** Panelist. Hosted by the Wasserman Center for Career Development, NYU. January 31st, 2020.

3. Science for Policy and Policy for Science. **Yelena Bernadskaya,** Panelist. Hosted by The Mindich Trainee Leadership Committee, Icahn School of Medicine at Mount Sinai. May 23rd, 2017.

4. NYAS Webinar: What International Scientists Should Know about Immigration and Travel. **Yelena Bernadskaya**. Hosted by Dr. Yaihara Fortis. New York Academy of Science. March 8th, 2017.

5. Ask a Biologist! Workshop. **Yelena Bernadskaya.** Hosted by the North East Conference for Science and Skepticism. 2015

Selected Poster Presentations

1. Bernadskaya, Y.Y., Christiaen, L. DDR2 coordinates signaling between the cardiac gene regulatory network and cell trafficking to promote directed migration of precardiac cells. SDB 73rd Annual Meeting, 2014.

2. Bernadskaya, Y.Y., Patel, F.B., Hsu, H.T., Soto, M.C. Arp2/3-dependent branched actin has a positive role in recruiting junctional molecules and F-actin to the developing apical intestine. ASCB 2010.

3. Bernadskaya, Y.Y., Patel, F.B., Soto, M,C. Genetic studies of the embryonic morphogenesis roles of axonal guidance molecules. International Worm Meeting, 2009.

Awards

2025	Company of Biologists Travel Fellowship
2013	Best Graduate Student Paper Award, GSBS-UMDNJ.
2013	Dissertation Excellence Award, GSBS-UMDNJ.
2012	1st Place, Graduate Student Symposium Poster Award.
2011	1st Place, Genetics Society of America Student Poster Award, 18th International *C. elegans* Meeting.
2008	1st Place, Graduate Student Symposium Poster Award.

2007 Honorable Mention, Genetics Society of America Student Poster Award, 16th International *C. elegans* Meeting
2006-2007 GAANN Fellow

Mentored Students and Postdocs

UMass-Amherst

1. Eric Surette, Ph.D - Postdoctoral associate
2. Suoyi Feng - MCB rotation student
3. Parsa Masomi - MCB rotation student, now Graduate Student in Maresca Lab
4. Sofia Gaibor - MCB rotation student, now Graduate Student in Downs Lab
5. Anna Postnikova - MCB rotation student, now Graduate Student in Mager Lab
6. Kayla Tankard - MCB rotation student, now Graduate Student in Maresca Lab
7. Ian Prudhomme - MCB rotation student, now Graduate Student in Maresca Lab
8. Grant Cha Fong - Biology student, undergraduate researcher, M.S. student
9. Maria Zimplas - Biology student, undergraduate researcher
10. Kelsey Gilrein - Biology student, undergraduate researcher
11. Xingshao Ye - Mt. Holyoke, undergraduate researcher

New York University

1. Yoon Seon Lee – Undergraduate, DURF Fellowship recipient, currently attending dental school in South Korea.
2. Tanim Jain – Undergraduate. Two-time DURF Fellowship recipient. Now pursing MD at Hofstra Medical School. Honors thesis title: Cells in Motion: the role of endocytic trafficking in regulating the migration of precardiac cells in Ciona intestinalis.
3. Saahil Brahmbhatt – Undergraduate, currently attending NYU Dental School.
4. David Sebastian Jimenez – Rotation student, currently pursuing PhD at NYU Biology
5. Peter Whitney – Rotation student, graduated with a Ph.D in 2022 from NYU Biology
6. Ria Deshpande – Masters student, two-time Masters Research Grant recipient, currently pursuing PhD at UC Irvine. Thesis title: Role of Discoidin domain receptor (Ddr) in development of notochord and epidermis in Ciona.
7. Davis Looney – Undergraduate. Currently working on endocytic trafficking and cell polarity during collective cell migration.
8. Luok Wen Long – Rotation student, currently pursuing PhD at NYU Biology
9. Oliver Madilian – Undergraduate. Two-time DURF recipient.
10. Dan Wasserberg – Masters student
11. Selena Gupta – Ph.D. student working on modeling cell migration, F31 pre-doctoral fellowship recipient
12. Maria Bikou, Ph.D - Postdoctoral associate
13. Ariel Kuan, Ph.D - Postdoctoral associate

General Audience Writing

Emerging, Uncommon, and Non-model Organism Questionnaire. American Society for Cell Biology. November 2023. https://www.ascb.org/science-news/uncommon-non-model-organism-questionaire/

Genotype: A Mendelian Genetics Game. For Adventures in Poor Taste. February 2020. https://www.adventuresinpoortaste.com/2020/02/12/kickstarter-alert-genotype-a-mendelian-genetics-game-darwin-day-evolution/

Interview with the creators of 'ANYA', a genetic mystery movie. For Adventures in Poor Taste, March 2019.

http://www.adventuresinpoortaste.com/2019/03/14/interview-with-creators-of-anya-a-genetic-mystery-movie/

How does X-Gene inheritance work for the X-Men? For Reality Check, Adventures in Poor Taste, November 2018.
http://www.adventuresinpoortaste.com/2018/11/19/reality-check-how-does-x-gene-inheritance-work-for-the-x-men/

Secondary mutations and power suppression – can the X-men's gene expression be controlled? For Reality Check, Adventures in Poor Taste, November 2018.
http://www.adventuresinpoortaste.com/2018/11/12/secondary-mutations-and-power-suppression-can-the-x-mens-gene-expression-be-controlled/

How does the X-Men's X-Gene create so many different mutants? For Reality Check, Adventures in Poor Taste, November 2018.
http://www.adventuresinpoortaste.com/2018/11/09/reality-check-how-does-the-x-mens-x-gene-create-so-many-different-mutants/

After Hunt for Wolverine: Adamantium Agenda #4, is X-23 a Clone or What? For Reality Check, Adventures in Poor Taste, August 2018.
http://www.adventuresinpoortaste.com/2018/08/14/reality-check-after-hunt-for-wolverine-adamantium-agenda-4-is-x-23-a-clone-or-what/

Pride and Minipreps, a satirical piece for the Cooper Square Review, Sept. 2017.
http://coopersquarereview.org/post/pride-and-minipreps/

NYC Postdocs Respond to Travel Ban, blog post for the POSTDOCket, April 2017.
https://www.nationalpostdoc.org/page/postdocket_04173/NYC-Postdocs-Respond-to-the-Travel-Ban-A-Survey-Conducted-by-the-NYC-P.htm?2017AnnualMeeting

Book reviews

Human Errors: A Panorama of Our Glitches, from Pointless Bones to Broken Genes. For Adventures in Poor Taste, June 2018.
http://www.adventuresinpoortaste.com/2018/06/17/human-errors-a-panorama-of-our-glitches-from-pointless-bones-to-broken-genes-a-review/

Soonish: Ten Emerging Technologies that'll Improve and/or Ruin Everything. For Adventures in Poor Taste, April 2018.
http://www.adventuresinpoortaste.com/2018/04/08/think-about-the-future-soonish-ten-emerging-technologies-thatll-improve-and-or-ruin-everything-review/

Comedy Showcases

Standup for Science	New York Hall of Science, May 2019
Science Riot	Caveat, May 2019
Jokes from the Underground	Soho Playhouse, November, 2018.
The Symposium: Academic Standup	Caveat, September 2018.

Continued Education

2018	Bioinformatics Workshop
2015	Science Diplomacy Workshop

2014	Fundamentals of Teaching Certificate Program
2014	Advanced Scientific Writing Workshop
2013-2014	TEDMED Editorial Researcher
2012-2013	Advanced Writing Workshops for Non-science Audiences 1/2.

Other activities

2019	Science Riot, Producer
2018 – 2020	NYU Washington Square Postdoc Council
2016 – 2020	NYC Postdoc Coalition Board of Directors
2016 – 2020	NECSS Organizing Committee (www.necss.org)
2016 – 2018	Future of Research Board of Directors
2015 – 2016	FOR NYU PoIntS Organizing Committee
2015 – 2016	Review Board for Bio-Protocol
2014 – 2020	NYC Skeptics Board of Directors (www.nycskeptics.org)
2013 – 2015	SkeptiCamp, Assistant Organizer
2010 – 2011	Academic year: Vice-President of the JMBGSA
2009 – 2020	NYC Skeptics: Organizer, volunteer, social event coordinator.