Yelena Bernadskaya, Ph.D.

Senior Research Scientist

Center for Developmental Genetics,
Department of Biology,
New York University
100 Washington Square E., New York, NY 10003
Phone: 1(212)998-8281 Twitter:@YBernadskaya
Email: yb372@Nyu.edu

Research Interests

My research focuses on understanding the role and regulation of collective cell migration in the context of embryonic morphogenesis. cell movements and basic rules of embryonic development. My current projects include understanding the interplay of force acting within and outside migrating cells, polarity establishment and maintenance, regulation of cell adhesion, and deployment of subcellular processes to generate various cell behaviors that contribute to embryonic morphogenesis. My work has identified the receptor tyrosine kinase Ddr as a coordinator of cell polarity and adhesion during TVC migration and in collaboration with the Mogilner lab I have developed a predictive computational model of TVC migration that has allowed us to investigate migration modes and the effects of force perturbation on cell polarity and efficiency of migration.

Education

UMDNJ/Rutgers	Ph.D.	Cell and Developmental Biology	2012
New York University	M.S.	Biology	2006
LIU, Brooklyn	B.S.	Biology	2004

Research Support

F32 GM108369-01A1 Bernadskaya (PI) 5/1/2014-4/30/2016

The goal of this grant is to understand how the precardiac GRN consisting of FoxF/FGF/RhoDF contributes to the polarization and migration of the trunk ventral cells, connecting the cardiac GRN to developmental cell behaviors.

Average Priority Score: 27 Percentile: 19 Role: PI

Publications

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

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

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

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

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

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

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

Writing for general audience

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/

Mentored Students

Yoon Seon Lee	Undergraduate, DURF Fellowship recipient, attended dental school in South Korea.
Tanim Jain	Undergraduate. Two-time DURF Fellowship recipient. Now pursuing 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.**
Saahil Brahmbhatt	Undergraduate, continued to NYU Dental School.
David Jimenez	Rotation student, currently pursuing PhD at NYU Biology
Peter Whitney	Rotation student, currently pursuing PhD at NYU Biology
Ria Deshpande	Masters student, two-time Masters Research Grant recipient, currently pursuing PhD at UC Irvine. **Masters thesis title: Role of Discoidin domain receptor (Ddr) in development of notochord and epidermis in Ciona.**
Davis Looney	Undergraduate. Studied endocytic trafficking and cell polarity during collective cell migration.