Curriculum Vitae

BING HE, Ph.D.

Assistant Professor, Department of Biological Sciences
Molecular and Cellular Biology Graduate Program
Cancer Biology and Developmental Therapeutics Research Program,
Norris Cotton Cancer Center
Dartmouth College, 78 College Street
350 Life Sciences Center
Hanover, NH 03755
603-646-2649
Bing. He@Dartmouth.edu

Education

B.Sc.	Biology, Peking University, 2001
Ph.D.	Biology, University of Pennsylvania, 2008

Research and Professional Experience

2016-Present	Assistant Professor of Biological Sciences Dartmouth College, Hanover, NH
2009-2015	Laboratory of Eric Wieschaus, Princeton University Postdoctoral research on the mechanics of tissue folding, mechanism of cellularization, and organization of heterochromatin
2002-2008	Laboratory of Wei Guo, University of Pennsylvania Ph.D. thesis research on the function of the exocyst in polarized exocytosis and actin dynamics
2000-2001	Laboratory of Yi Li, Peking University Undergraduate thesis research on RNA-mediated virus resistance in tobacco plants

Fellowships and Awards

2018-2023	NIH Maximizing Investigators' Research Award for Early Stage Investigators
2018-2019	Dartmouth-Hitchcock Norris Cotton Cancer Center Pilot Project Grant
2016-2017	Dartmouth-Hitchcock Norris Cotton Cancer Center Pilot Project Grant
2009-2012	NJ Commission on Cancer Research Fellowship
2006	American Society for Cell Biology Travel Awards
2000	Guang Hua Scholarship, Peking University
1999, 2000	Honor for Outstanding Academic Performances, Peking University
1999	The May Fourth Scholarship, Peking University

Professional Service

Manuscript Reviewer: *Nature Cell Biology*, *Nature Physics*, *Nature Communications*, *Developmantal Cell*, *Development*, *Cell Reports*, *PLoS Genetics*

Professional Society Membership:

- American Society for Cell Biology
- Genetics Society of America
- Society for Developmental Biology

Current Grant Support

- **American Cancer Society Institutional Research Grant 2018 (Norris Cotton Cancer Center):** Bing He (PI)
  "*Regulation of cell mechanics by apical-basal polarity determinants*"
  5/1/2018 - 4/30/2019 $30,000
- **NIH Maximizing Investigators' Research Award for Early Stage Investigators (R35)**
  Bing He (PI), Zi Chen (Senior associates, The Thayer School of Engineering)
  "*Regulation and function of region-specific tissue mechanical properties in epithelial folding*"
  07/20/2018 – 06/30/2023 $1,250,000 ($55,000 to Thayer)

Previous Grant Support

- **NJ Commission on Cancer Research Fellowship:** Bing He (Post-Doctoral Fellow)
  "*In vivo analysis of Drosophila ventral furrow formation*"
  12/01/2009 - 11/30/2012 $86,000
- **American Cancer Society Institutional Research Grant 2016 (Norris Cotton Cancer Center):** Bing He (PI)
  "*Mechanisms of cell surface expansion underlying morphological transformation of tissue*"
  6/1/2016 - 5/31/2017 $30,000

Publications

1. Bing He*, Adam Martin, Eric Wieschaus. (2016) Flow-dependent myosin recruitment during *Drosophila* cellularization requires zygotic *dunk* activity. *Development* 143(13):2417-30. * Corresponding author.
2. Bing He, Konstantin Doubrovinski, Oleg Polyakov, Eric Wieschaus (2014) Apical constriction drives tissue-scale hydrodynamic flow to mediate cell elongation. *Nature* 508(7496):392-6.
3. Oleg Polyakov, Bing He, Michael Swan, Joshua Shaevitz, Matthias Kaschube, Eric Wieschaus (2014). Passive mechanical forces control cell shape change during *Drosophila* ventral furrow formation. *Biophysical Journal* 107(4):998-1010.
4. Bing He, Amy Caudy, Lance Parsons, Adam Rosebrock, Attilio Pane, Sandeep Raj, Eric Wieschaus (2012) Mapping the pericentric heterochromatin by comparative genomic hybridization analysis and chromosome deletions in *Drosophila melanogaster*. *Genome Research* 22(12):2507-19.

5. Michael Gelbart, Bing He, Adam Martin, Stephan Thiberge, Eric Wieschaus, Matthias Kaschube (2012) Volume conservation principle involved in cell lengthening and nucleus movement during tissue morphogenesis. *PNAS* 109 (47):19298-303.
6. Jianglan Liu, Yuting Zhao, Yujie Sun, Bing He, Changsong Yang, Tatyana Svitkina, Yale Goldman, Wei Guo (2012) Exo70 stimulates the Arp2/3 complex for lamellipodia formation and directional cell migration. *Curr Biol* 22 (16):1510-5.
7. Bing He and Wei Guo (2009) The exocyst complex in polarized exocytosis. Review. *Current Opinion in Cell Biology* 21(4):537-42.
8. Xiaoyu Zhang, Kelly Orlando, Bing He, Fengong Xi, Jian Zhang, Allison Zajac, Wei Guo (2008) Membrane association and functional regulation of Sec3 by phospholipids and Cdc42. *Journal of Cell Biology* 180(1):145-58.
9. Bing He, Fengong Xi, Xiaoyu Zhang, Jian Zhang, Wei Guo (2007) Exo70 interacts with phospholipids and mediates the targeting of the exocyst to the plasma membrane. *The EMBO Journal* 26(24):5167.
10. Bing He, Fengong Xi, Jian Zhang, Daniel TerBush, Xiaoyu Zhang, Wei Guo (2007) Exo70p mediates the secretion of specific exocytic vesicles at early stages of the cell cycle for polarized cell growth. *Journal of Cell Biology* 176(6):771-7.

Invited Talks

1. Bing He (2018) Regulation of tissue-level coordination during Drosophila mesoderm invagination. Northeast SDB Regional Meeting 2018.
2. Bing He, Adam Martin, Eric Wieschaus (2015) Dunk stabilizes actomyosin network during *Drosophila* cellularization. The Biennial Canadian *Drosophila* Research Conference XIII.
3. Bing He, Adam Martin, Eric Wieschaus (2015) Dunk stabilizes the actomyosin network at the leading edge of the cleavage furrows during *Drosophila* cellularization. 2015 Annual *Drosophila* Research Conference.
4. Bing He, Konstantin Doubrovinski, Oleg Polyakov, Eric Wieschaus (2013) Viscous forces mediate tissue deformation during apical constriction-induced epithelial folding. 53th American Society for Cell Biology Annual Meeting.
5. Bing He, Jianglan Liu, Wei Guo (2008) Exo70 interacts with phosphatidylinositol 4,5-bisphosphate and mediates the targeting of the exocyst to the plasma membrane for exocytosis. 48th American Society for Cell Biology Annual Meeting.
6. Bing He and Wei Guo (2008) The critical role of the exocyst component Exo70 in polarized exocytosis. Philadelphia Area Yeast Genetics Meeting.

Symposium Posters (presenting author underlined)

1. Melisa Fuentes, Bing He (2018) Epithelial polarity proteins regulate the mechanics of invagination. SDB 77th Annual Meeting.
2. Wei Chen, Bing He (2018) Myosin-dependent accumulation and spatial confinement of Rab11-positive vesicles. SDB 77th Annual Meeting.
3. Melisa Fuentes, Bing He (2017) Identifying the molecular and mechanical requirements for coordinated tissue invagination. 2017 ASCB/EMBO Meeting.
4. Wei Chen, Bing He (2017) Apical myosin activation induces Rab11 puncta accumulation near the apical cortex. 2017 ASCB/EMBO Meeting.

5. Bing He, Adam Martin, Eric Wieschaus (2014) Dunk stabilizes the actomyosin network at the leading edge of the cleavage furrows during *Drosophila* cellularization. 54th ASCB/IFCB Meeting.
6. Bing He, Oleg Polyakov, Konstantin Doubrovinski, Eric Wieschaus (2012) Plasma membrane partitioning of syncytial blastoderm into individual cells is critical for tissue invagination during *Drosophila* ventral furrow formation. 52th American Society for Cell Biology Annual Meeting.
7. Bing He, Oleg Polyakov, Eric Wieschaus (2011) How "acellular" embryos gastrulate: Study cytoplasm movements during gastrulation in developing *Drosophila melanogaster* embryos. 51th American Society for Cell Biology Annual Meeting.
8. Bing He, Amy Caudy, Sandeep Raj, Eric Wieschaus (2010) Positioning *Drosophila* centromeric heterochromatin sequences by comparative genomic hybridization analysis. 50th American Society for Cell Biology Annual Meeting.
9. Bing He, Fengong Xi, Xiaoyu Zhang, Jian Zhang, Wei Guo (2007) Exo70 interacts with phospholipids and mediates the targeting of the exocyst to the plasma membrane. 47th American Society for Cell Biology Annual Meeting.
10. Bing He, Fengong Xi, Jian Zhang, Xiaoyu Zhang, Wei Guo (2006) Exo70p mediates the secretion of specific exocytic vesicles at early stages of cell cycle for polarized cell growth. 46th American Society for Cell Biology Annual Meeting.

Courses taught:

BIOL12: Cell Structure and Function (Undergraduate course with lab)
Spring 2016 (co-taught with Amy Gladfelter, 53 students enrolled)

BIOL263: Res Colloq: Cell Biology (Graduate course)
Winter 2017 (16 students enrolled)

BIOL12: Cell Structure and Function (Undergraduate course with lab)
Spring 2017 (co-taught with Sharon Bickel, 91 students enrolled)

BIOL41: Cells into Organs: Assembly, Function and Disease (Undergraduate course)
Fall 2017 (A new course designed by Bing He, 17 students enrolled)

BIOL263: Res Colloq: Cell Biology (Graduate course)
Winter 2018 (9 students enrolled)

BIOL12: Cell Structure and Function (Undergraduate course with lab)
Spring 2018 (59 students enrolled)

BIOL41: Cells into Organs: Assembly, Function and Disease (Undergraduate course)
Fall 2018 (12 students enrolled)

Advising and mentoring activities:

Undergraduate students:

- Kenneth Zhu 2016F, 2017S Sophomore Research Fellow
- Katherine Royce 2017W Paid Research Assistant

- Brenna Gourgeot 2017S Paid Research Assistant
- Samuel Reed 2017X-2018S Junior Research Fellow
  2018F-present Thesis Student
- Melissa Wang 2018W-2018S WISP Intern
  2018F-present Barbara E. Crute Memorial Intern
- Michael Brown 2018S Sophomore Research Fellow
- Sruti Pari 2018X-present Presidential Scholar
- Gabrielle Levy 2019W-present WISP Intern

Graduate students:

- Melisa Fuentes 2016S-present PhD student
- Wei Chen 2016S-present PhD student
- Jiayang Chen 2017S-present PhD student
- Hanqing Guo 2018S-present PhD student

Postdocs (research associates and fellows):

- Alicia Sivitz 2016S

Thesis or advisory committees:

- Qualifying exam committee for Timothy Gauvin (Griffin Lab)
- Qualifying exam & thesis committee for Joseph Magliozzi (Moseley Lab)
- Qualifying exam committee for Xintao Fan (Griffin Lab)
- Qualifying exam & thesis committee for Xiaohang Cheng (Bezanilla Lab)
- Undergraduate thesis committees for Samantha LaFontaine (Sloboda Lab)
- Undergraduate thesis committees for Nicholas Vernice (Hoopes Lab)