

# Natalie Sirisaengtaksin, Ph.D.

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## EDUCATION

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- 2010-2017      **Ph.D., Neuroscience**  
The University of Texas MD Anderson Cancer Center UTHealth  
Graduate School of Biomedical Sciences – Houston, Texas  
Dissertation: Characterization of the ubiquitin ligase, UBE4B, in endocytic trafficking.  
Advisor: Andrew Bean, Ph.D.
- 2008-2010      **M.S., Biomedical Sciences**  
Cancer Biology and Cell Biology  
The University of Texas MD Anderson Cancer Center UTHealth  
Graduate School of Biomedical Sciences – Houston, Texas  
Thesis: The ubiquitin ligase, UBE4B, is required for efficient epidermal growth factor  
receptor degradation  
Advisor: Andrew Bean, Ph.D.
- 2006-2008      **B.S., Biology**  
University of Houston-Downtown
- 2003-2005      **B.S., Psychology**  
University of Texas at Austin

## RESEARCH EXPERIENCE

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- July 2017-  
present      **Postdoctoral Research Fellow**  
McGovern Medical School at UTHealth  
Department of Microbiology and Molecular Genetics  
Advisor: Anne-Marie Krachler, Ph.D.
- 2008-2017      **Graduate Research Assistant**  
McGovern Medical School at UTHealth  
Department of Neurobiology and Anatomy  
Advisor: Andrew Bean, Ph.D.
- 2007-2008      **Undergraduate Research Assistant**  
University of Houston-Downtown  
Department of Natural Sciences  
Advisor: Poonam Gulati, Ph.D.
- 2005      **Undergraduate Research Assistant**  
University of Texas at Austin  
Laboratory for the Study of Anxiety Disorders

## PUBLICATIONS

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### *Accepted Publications*

1. Cecil JD\*, **Sirisaengtaksin N\***, O'Brien-Simpson NM, Krachler AM. Outer membrane vesicle-host cell interactions. *Microbiology Spectrum*. 2019 Jan. 7(1). PMID: 30681067. \* denotes equal contributions
2. Flores E\*, Thompson L\*, **Sirisaengtaksin N\***, Nguyen AT\*, Ballard A\*, Krachler AM. Using the Protozoan *Paramecium caudatum* as a vehicle for food-borne infections in zebrafish larvae. *J Vis Exp*. 2019 Jan 7. (143). PMID: 30663701. \* denotes equal contributions
3. Gireud-Goss M, Reyes S, Wilson M, Farley M, Memarzadeh K, Srinivasan S, **Sirisaengtaksin N**, Yamashita S, Waxham MN, Tsunoda S, Lang FF, Bean AJ. Distinct mechanisms enable inward or outward budding from late endosomes/multivesicular bodies. *Exp Cell Res*. 2018 Aug 22. pii: S0014-4827(18)30778-X. PMID: 30144444.
4. O'Donoghue EJ, **Sirisaengtaksin N**, Browning DF, Bielska E, Hadis M, Fernandez-Trillo F, Alderwick L, Jabbari S, Krachler AM. Lipopolysaccharide structure impacts the entry kinetics of bacterial outer membrane vesicles into host cells. *PLoS Pathog*. 2017 Nov 29;13(11):e1006760. PMID: 29186191.
5. Gireud M, **Sirisaengtaksin N**, Tsunoda S, Bean AJ. Cell-free reconstitution of multivesicular body (MVB) cargo sorting. *Methods Mol Biol*. 2015; 1270:115-24. PMID: 35702113.
6. Bakhru P, **Sirisaengtaksin N**, Soudani E, Mukherjee S, Khan A, Jagannath C. BCG vaccine mediated reduction in the MHC-II expression of macrophages and dendritic cells is reversed by activation of Toll-like receptors 7 and 9. *Cellular Immunology*. 2014 Jan; 287(1): 53-61. PMID: 24384074.
7. **Sirisaengtaksin N\***, Gireud M\*, Yan Q, Kubota Y, Meza D, Waymire JC, Zage PE, Bean AJ. UBE4B couples ubiquitination and sorting machineries to enable EGFR degradation. *Journal of Biological Chemistry*. 2014 Jan 31; 289(5): 3026-39. PMID: 24344129. \* denotes equal contributions
8. Mehra A, Zahra A, Thompson V, **Sirisaengtaksin N**, Wells A, Porto M, Penberthy K, Kubota Y, Dricot A, Rogan D, Vidal M, Hill DE, Bean AJ, Philips JA. *Mycobacterium tuberculosis* Type VII secreted effector EsxH targets Host ESCRT to impair trafficking. *PLoS Pathogens*. 2013 Oct; 9(10):e1003734. PMID: 24204276.
9. Ferrati S, McConnell K, Mack AC, **Sirisaengtaksin N**, Diaz R, Bean AJ, Ferrari M, Serda RE. Cellular communication via nanoparticle-transporting biovesicles. *Nanomedicine*. 2013 Jun 3. PMID: 23731456.
10. Zage PE\*, **Sirisaengtaksin N\***, Liu Y, Gireud M, Brown BS, Palla S, Richards KN, Hughes DPM, Bean, AJ. UBE4B levels are correlated with clinical outcomes in neuroblastoma patients and with altered neuroblastoma cell proliferation and sensitivity to epidermal growth factor receptor inhibitors. *Cancer*. 2013 Feb 15; 119(4):915-23. PMID: 22990745. \* denotes equal contributions
11. Sun W, Vida TA, **Sirisaengtaksin N**, Merrill SA, Hanson PI, Bean AJ. Cell-free reconstitution of multivesicular body formation and receptor sorting. *Traffic*. 2010 Jun; 11(6):867-76. PMID: 20214752.

***Pre-prints***

12. **Sirisaengtaksin N**, O'Donoghue EJ, Jabbari S, Roe AJ, Krachler AM. Bacterial outer membrane vesicles provide an alternative pathway for trafficking of type III secreted effectors into epithelial cells. September 2018. Preprint available on [bioRxiv](#).

***Book chapters***

13. Gireud M, **Sirisaengtaksin N**, Bean AJ. Molecular Mechanisms of Neurological Disease. In: From Molecules to Networks: An Introduction to Cellular and Molecular Neuroscience (eds. Byrne JH, Heidelberger R, and Waxham MN) Academic Press. 2014.
14. **Sirisaengtaksin N**, Brown BS, Bean AJ. Endocytosis. In: Mass Transport of Nanocarriers (ed. Serda R) Pan Stanford Publishing Pte. Ltd. 2011.

**PRESENTATIONS**

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1. **Sirisaengtaksin N**, O'Donoghue EJ, Jabbari S, Roe AJ, Krachler AM. Bacterial outer membrane vesicles provide an alternative pathway for trafficking of type III secreted effectors into epithelial cells. Poster presentation at the Federation of American Societies for Experimental Biology (FASEB)- The Microbial Pathogenesis Conference: Mechanisms of Infectious Disease. Snowmass, Colorado, July 2019.
2. **Sirisaengtaksin N**, O'Donoghue EJ, Jabbari S, Roe AJ, Krachler AM. Bacterial outer membrane vesicles provide an alternative pathway for trafficking of type III secreted effectors into epithelial cells. Poster presentation at the Texas Branch Meeting of the American Society for Microbiology. New Braunfels, Texas, March 2019.
3. **Sirisaengtaksin N** and Krachler AM. Shear force alters mechanosensitive gene expression in enterohemorrhagic *Escherichia coli*. Poster presentation at the Texas Branch Meeting of the American Society for Microbiology. College Station, Texas, October 2017.
4. **Sirisaengtaksin N** and Bean AJ. Coordinated action of ubiquitin ligases promote multivesicular body sorting of endocytic cargo.
  - a. Poster presentation at the American Society for Cell Biology Annual Meeting. San Diego, California, December 2015.
  - b. Poster presentation at the American Society for Cell Biology Annual Meeting. Philadelphia, Pennsylvania, December 2014.
  - c. Poster presentation at the Gordon Research Seminar and Conference on Lysosomes & Endocytosis. Andover, New Hampshire, June 2014.
5. **Sirisaengtaksin N**, Gireud M, Yan Q, Kubota Y, Meza D, Waymire JC, Zage PE, Bean AJ. UBE4B couples ubiquitination with ESCRT recognition to enable membrane protein sorting on the endosome. Poster presentation at the American Society for Cell Biology Annual Meeting. New Orleans, Louisiana, December 2013.
6. **Sirisaengtaksin N**, Zage PE, Liu Y, Gireud M, Brown BS, Palla S, Richards KN, Hughes DPM, Bean AJ. UBE4B expression is associated with neuroblastoma proliferation, EGFR trafficking, and

clinical outcomes. Poster presentation at the Society for Neuroscience Annual Meeting. New Orleans, Louisiana, October 2012.

7. **Sirisaengtaksin N**, Sun W, Yan Q, Zage PE, and Bean AJ. The ubiquitin ligase, UBE4B, promotes multivesicular body sorting of EGF receptors.
  - a. Poster presentation at the Sixth International Conference: SUMO, Ubiquitin, UBL Proteins: Implications for Human Diseases. Houston, Texas, February 2012.
  - b. Oral and poster presentation at the Symposia on Cancer Research. Houston, Texas, September 2011.
8. **Sirisaengtaksin N**, Sun W, Yan Q, Nguyen VH, Zage PE, and Bean AJ. The ubiquitin ligase UBE4B is required for efficient degradation of Epidermal Growth Factor Receptors. Poster presentation at the Fifth International Conference: SUMO, Ubiquitin, UBL Proteins: Implications for Human Diseases. Houston, Texas, February 2010.
9. **Sirisaengtaksin N**, Nguyen VH, Sun W, and Bean AJ. Comparison of the Molecular Mechanisms of Phagocytosis and Endocytosis. Poster presentation at the Spring Meeting of the Texas Branch-American Society for Microbiology. New Braunfels, Texas, March 2009.
10. **Sirisaengtaksin N**, Gulati P, Jiménez-López C. Molecular analysis of extrapolymeric substances from *Staphylococcus aureus* and *Pseudomonas aeruginosa* biofilms.
  - a. Poster presentation at the Annual Biomedical Research Conference for Minority Students. Orlando, Florida, November 2008.
  - b. Poster presentation at the Joint Meeting of the Geological Society of America, Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM. Houston, Texas, October 2008.
  - c. Poster presentation at the Spring Meeting of the Texas Branch- American Society for Microbiology. New Braunfels, Texas, March 2008.

## **TEACHING EXPERIENCE**

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February 2018	Workshop Leader: Adobe Illustrator for Scientists, The University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences.
Fall 2016	Teaching Assistant for Foundations of Biomedical Sciences, The University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences.
Spring 2014	Teaching Assistant for Scientific Writing, The University of Texas MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences.
Spring and Fall 2007	Peer Led Team Learning (PLTL) Workshop Leader/ Lab Tutor for College Algebra, University of Houston-Downtown.

## **FELLOWSHIPS AND SCHOLARSHIPS**

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January 2019 - present Cancer Prevention Research Institute of Texas (CPRIT) UTHealth Fellowship in Innovation for Cancer Prevention Research

October 2016	Dee S. and Patricia Osborne Endowed Scholarship in the Neurosciences, MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences
August 2016	Presidents' Research Scholarship, MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences
September 2014	Dean's Research Scholarship Award, UTHealth Medical School at Houston
April 2014	Gordon Research Conference Carl Storm Underrepresented Minority Fellowship
September 2013- August 2016	Russell and Diana Hawkins Family Foundation Fellowship
May 2007- August 2008	Welch Foundation Scholarship, University of Houston-Downtown

## **HONORS AND DISTINCTIONS**

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May 2019	2nd Place, Deans' Excellence in Research Award for Postdoctoral Research Fellows, UTHealth
October 2017	2nd Place, Postdoctoral Poster Presentation, Texas Branch Meeting of the American Society for Microbiology
May 2016	Best Journal Club Presentation 2015 - 2016, Neuroscience Graduate Program
December 2015	American Society for Cell Biology Minority Affairs Committee (MAC) Travel Award
Spring 2015	1st place, William and Madeline Welder Smith Award, Spring Neuroscience Program Elevator Pitch Competition
December 2014/ November 2008	Minority Access to Research Careers (MARC) Travel Award, Federation of American Societies for Experimental Biology (FASEB)
October 2013	1st place Neuroscience Program Student Retreat Poster Session
October 2013	3rd place Graduate Student Education Committee Poster Competition, UTHealth Medical School
October 2011	2nd place Neuroscience Program Student Retreat Poster Session
September 2011	Poster Presentation Award, Category: Regulation and Structure of HER Proteins, Symposia on Cancer Research 2011, MD Anderson Cancer Center

**INSTITUTIONAL SERVICE AND LEADERSHIP ACTIVITIES**

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June 2019 - present	Co-Chair, Postdoctoral Association, UTHealth
January 2019-present	AMBR Postdoctoral Mentor, Association of Minority Biomedical Researchers, MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences
July 2018 - present	Vice Chair, Postdoctoral Association, UTHealth
July 2018-October 2018	Organizing Committee: Logistics, NatureJobs Career Expo Texas 2018, TMCx Accelerator.
June 2018	Head Judge for Poster Session, GSBS Research Day, MD Anderson Cancer Center UTHealth Graduate School of Biomedical Sciences
January 2018-March 2018	Co-Chair, Dean's Research Award, UTHealth Medical School
August 2017-February 2018	Annual Postdoctoral Career Symposium Committee
July 2017 - present	Member, Postdoctoral Association, UTHealth
June 2012 - May 2017	Editor, Neurograd News, Neuroscience Graduate Program Newsletter
May 2012 - May 2014	Neuroscience Program Student Council
February 2014	Visitation Student Coordinator (Ringleader) for GSBS Interview Weekend
October 2012	GSBS representative at Society for Neuroscience Graduate School Fair
January 2008-December 2008	Leeuwenhoek Society, University of Houston-Downtown Student Branch of the American Society for Microbiology (ASM), Executive Officer and Secretary

**COMMUNITY SERVICE**

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March 2019 - present	Program Coordinator, American Society for Microbiology- Texas Medical Center Branch, Young Biologists' Program in collaboration with Alief ISD Taylor High School
March 2019 - June 2019	Event Coordinator, Science Day for Furr High School Students hosted by Postdoctoral Association at UTHealth and UTHealth Cares
January 2019 - present	Grant Writer, International Medical Outreach
August 2018 - present	Graphic Design Manager, International Voices Houston
March 2012-March 2019	Brain Night, hosted by the Neuroscience Research Center at the Health Museum

February 2013-  
May 2018

Houston Food Bank

September 2017

Hurricane Harvey Recovery with BakerRipley

April 2014 and April 2017

Neuroscience Research Center Public Forum

April 2016

All-Earth EcoBot Challenge, EcoGenius Lab Leader

GSBS Outreach Events: Science Night, February 2014; Hermann Park Conservancy, November 2013; Vincentian Services Center, July 2013.