ANDREW J. SPRACKLEN
University of North Carolina at Chapel Hill
Lineberger Comprehensive Cancer Center and Department of Biology
521 Fordham Hall
Chapel Hill, NC 27599
919-962-2272
asprack@email.unc.edu

CURRENT POSITION

August 2014 – Present — **Postdoctoral Fellow**, Lab of Mark Peifer, PhD
University of North Carolina at Chapel Hill
School of Medicine Lineberger Comprehensive Cancer Center and Department of Biology

EDUCATION

2009 – 2014 — **PhD** (Mentor: Tina L. Tootle, PhD)
University of Iowa, Iowa City, IA
Interdisciplinary Graduate Program in Molecular and Cellular Biology
Department of Anatomy and Cell Biology, University of Iowa
Carver College of Medicine
Thesis defense: May 23, 2014

2005 – 2009 — **BA** (Major: Biology)
Anderson University, Anderson, IN
College of Liberal Arts and Sciences
Graduated: May 2009, Departmental Honors

PUBLICATIONS

Groen, CM*, **Spracklen, AJ***, Fagan, TN & Tootle, TL. *Drosophila* Fascin is a novel downstream target of prostaglandin signaling during actin remodeling. *Mol. Biol. Cell* 23, 4567-4578, doi:10.1091/mbc.E12-05-0417 (2012). *** Denotes shared first authorship**
http://www.molbiolcell.org/content/23/23/4567.full

Spracklen, AJ & Tootle, TL. The Utility of Stage-specific Mid-to-late *Drosophila* Follicle Isolation. *Journal of visualized experiments : JoVE*, doi:10.3791/50493 (2013).
http://www.jove.com/video/50493/the-utility-stage-specific-mid-to-late-drosophila-follicle

Spracklen, AJ, Kelpsch, DJ, Chen, X, Spracklen, CN & Tootle, TL. Prostaglandins temporally regulate cytoplasmic actin bundle formation during *Drosophila* oogenesis. *Mol. Biol. Cell* 25, 391-411, doi:10.1091/mbc.E13-07-0366 (2014). **[Selected for the cover of the February 1, 2014 issue]**
http://www.molbiolcell.org/content/early/2013/11/22/mbc.E13-07-0366.abstract

Spracklen, AJ, Fagan, TN, Lovander, K, and Tootle, TL. The pros and cons of common actin labeling tools for visualizing actin dynamics during *Drosophila* oogenesis. *Dev Biol* 393, 209-226, doi:10.1016/j.ydbio.2014.06.022 (2014).
http://www.sciencedirect.com/science/article/pii/S0012160614003182

Spracklen, AJ and Tootle, TL. (2015) "*Drosophila*—a model for studying prostaglandin signaling.". Bioactive Lipid Mediators: Current Reviews and Protocols. Springer Japan. Editors: Takehiko Yokomizo and Makoto Murakami. doi:10.1007/978-4-431-55669-5. *Invited book chapter.*

Spracklen, AJ and Peifer, M. Actin and Apical Constriction: Some (Re)-Assembly Required. *Dev Cell* 35, 662-664, doi:10.1016/j.devcel.2015.12.006 (2015). http://www.sciencedirect.com/science/article/pii/S1534580715007911

Rogers, EM, **Spracklen, AJ**, Bilancia, CG, Sumigray, KD, Allred, SC, Nowotarski, SH, Schaefer, KN, Ritchie, BJ, and Peifer, M. Abelson kinase acts as a robust, multifunctional scaffold in regulating embryonic morphogenesis. *Mol. Biol. Cell* 27, 2613-2631, doi:10.1091/mbc.E16-05-0292 (2016). http://www.molbiolcell.org/content/early/2016/07/04/mbc.E16-05-0292

AWARDS & HONORS

2014	Outstanding Teaching Assistant Award – *awarded by the University of Iowa Council on Teaching to selected teaching assistants nominated by students, faculty, colleagues, departmental executive officers, or deans for having demonstrated outstanding ability as teachers*
2014	Tung-Yang Wing Award for Superior Achievement in Anatomy and Cell Biology Graduate Education – *achievement based award given in recognition of outstanding research achievement during the past year*
2014	University of Iowa Executive Council of Graduate & Professional Students Travel Grant
2014	University of Iowa Graduate Student Senate Travel Grant
2012	Molecular and Cellular Biology Retreat Travel Award (best talk)
2010	American Society for Cell Biology Pre-doctoral Travel Award
2010	Molecular and Cellular Biology Retreat Travel Award (best poster)
2009	Stevenson Outstanding Student Award (Anderson University (Anderson, IN)) – *achievement based award given to an outstanding senior in Biology*

FELLOWSHIPS

2016 – Present	National Institutes of Health Ruth L. Kirschstein National Research Service Award Individual Postdoctoral Fellowship (F32 GM117803), Defining how Abelson Kinase Regulates Cell Adhesion and Actin Dynamics
2014 – 2015	Trainee, Basic Mechanisms of Viral and Chemical Carcinogenesis Training Grant (T32 CA009156), University of North Carolina School of Medicine Lineberger Comprehensive Cancer Center
2010 – 2012	Trainee, Predoctoral Training in the Pharmacological Sciences Training Grant (T32 GM067795), University of Iowa

TEACHING EXPERIENCE

Teaching

Summer 2017 **Instructor of record: BIOL 205 Cell and Developmental Biology**
Course: BIOL 205: Cell and Developmental Biology, Summer Session I 2017
Number of students enrolled: 31
Summary: Designed material (lectures, guided reading questions, handouts, and exams) for and taught the developmental biology half of this course. Topics covered range from basic cell biology to establishment of the basic body plan to the developmental characteristics of cancer.

October 12, 2016 **Guest lecture: Cell-Cell & Cell-Matrix Junctions in Development and Disease**
Course: BIOL 205: Cell and Developmental Biology, Section 006 (Steinwand and Conlon)
Summary: Designed material for (lecture, guided reading questions, handouts, and exam questions) for a guest lecture on the topic of how cells adhere to one another and to extracellular substrates with a focus on the role of these junctions in development and human disease.

Summer 2016 **Instructor of record: BIOL 205 Cell and Developmental Biology**
Course: BIOL 205: Cell and Developmental Biology, Summer Session II 2016
Number of students enrolled: 38
Summary: Designed material (lectures, guided reading questions, handouts, and exams) for and taught the developmental biology half of this course. Topics covered range from basic cell biology to establishment of the basic body plan to the developmental characteristics of cancer.

Spring 2014 **Pharmaco-genetic interaction laboratory exercise, Howard University**
Course: BIOL 200: Genetics
Summary: Helped design and implement a laboratory exercise to teach ~40 students how to use genetic interactions to test epistatic relationships.

Spring 2013 **Teaching Assistant, University of Iowa**
Course: BIOC 3130: Biochemistry and Molecular Biology II
Summary: Based on prior performance, I was asked to fill in as an emergency substitute for this course. Designed material for and lead a weekly discussion session, helped individual students during office hours, and proctored exams.

Spring 2012 **Teaching Assistant, University of Iowa**
Course: BIOC 3130: Biochemistry and Molecular Biology II
Summary: Designed material for and lead a weekly discussion session, helped individual students during office hours, and proctored exams. Also, delivered a lecture on cell signaling and designed exam questions testing student's mastery of the concepts covered.

Spring 2009 **Lab Teaching Assistant, Anderson University**
Course: BIOL 2230: Microbes and Disease

Summary: Helped train students in basic microbiology lab techniques including aseptic technique, microorganism culturing, and the classification and identification of unknown cultures through morphological and biochemical analyses. Responsible for culture media preparation, maintenance of bacterial cultures, lab setup and cleanup, grading laboratory assignments and setting up, and proctoring and grading laboratory exams.

Spring 2008 **Lab Teaching Assistant, Anderson University**
Course: BIOL 2230: Microbes and Disease
Summary: Helped train students in basic microbiology lab techniques including aseptic technique, microorganism culturing, and the classification and identification of unknown cultures through morphological and biochemical analyses. Responsible for culture media preparation, maintenance of bacterial cultures, lab setup and cleanup, grading laboratory assignments and setting up, and proctoring and grading laboratory exams.

Fall 2007 **Lab Teaching Assistant, Anderson University**
Course: BIOL 1000: Principles of Modern Biology
Summary: Helped non-major students understand and apply basic biological principles by aiding them in laboratory exercises exploring such concepts as cells, genetics, ecology, the diversity of life, and the human body. Also responsible for lab setup, cleanup, and grading laboratory assignments.

Fall 2007 **Lab Teaching Assistant, Anderson University**
Course: BIOL 2210: Foundations of Modern Biology
Summary: Helped students understand and apply fundamental biological principles by aiding them in laboratory exercises exploring the concepts of cell structure and function, genetics, evolution, natural history, and ecology. Also responsible for lab setup, cleanup, grading laboratory assignments, and setting up, proctoring, and grading laboratory exams.

Outreach

April 2017 **North Carolina DNA Day**
Summary: This is an outreach program that sends early-career scientists to high school classrooms across the state, where they present hands on lessons about genetics, genomics, and biotechnology. With a partner, I presented a lesson module dealing with Forensic Science to three high school science classes at East Rowan High School located in Rowan County, NC. This module covered key concepts, including the central dogma of molecular biology, the use of DNA as forensic evidence, and ethical imlications of its use.

April 2016 **North Carolina DNA Day**
Summary: This is an outreach program that sends early-career scientists to high school classrooms across the state, where they present hands on lessons about genetics, genomics, and biotechnology. With a partner, I presented a lesson module dealing with DNA repair to a high school science class at SAGE Academy, an alternative school located in Siler City, NC. This module covered key concepts, including the central dogma of molecular biology, the biochemical nature of DNA, and DNA repair mechanisms.

April 2015 **North Carolina DNA Day**
Summary: This is an outreach program that sends early-career scientists to high school classrooms across the state, where they present hands on lessons about genetics, genomics, and biotechnology. With a partner, I presented a lesson module dealing with personalized medicine to two high school science classes at Ocracroke School, Ocracroke, NC. This module covered key concepts, including population level variability, genotype/phenotype relationship, and drug action.

Spring/Fall 2013 **Workplace Learning Connection—Junior Mini-medical School, University of Iowa Healthcare**
Summary: An outreach program designed to foster interest in pursuing STEM fields among high school students. As a part of the Tootle lab's involvement in this program, I demonstrated the use of epifluorescence microscopy to visualize cell dynamics during *Drosophila* egg development and talked about how we extend these studies to understand the causation and progression of human disease. Number of high school student participating: 3 groups of 20.

2008 – 2009 **Sigma Zeta National Science and Mathematics Honor Society (Upsilon Chapter) Home School Outreach Program, Anderson University**
Summary: An outreach program designed to supplement and enrich the education of homeschooled children (elementary – high school) in the natural sciences and mathematics through the use of hands-on activities. Involved in developing lesson plans, presenting educational material, and assisting students with the planned activities.

Undergraduates Mentored

2015 – Present Alison Bonner
Project: Exploring Abelson tyrosine kinase function during *Drosophila* embryonic development

2011 – 2014 Xiang Chen
Project: Examining oocyte polarity in *pxt* mutants and generating transgenic lines to examine Capping protein dynamics during *Drosophila* oogenesis

2010 – 2011 Chad J. Schuety
Project: Generating *pxt* deletion lines using imprecise P-element excision

2010 – 2012 Stephanie A. Meyer
Project: Using a pharmaco-genetic interaction screen to identify actin binding proteins acting downstream of prostaglandin signaling during *Drosophila* oogenesis

RESEARCH EXPERIENCE

2014 – Present **Postdoctoral Research**
University of North Carolina at Chapel Hill, Department of Biology and School of Medicine Lineberger Comprehensive Cancer Center
Advisor: Mark A. Peifer

Project Summary: Using *Drosophila* embryogenesis as an *in vivo* model to define how Abelson tyrosine kinase, a key oncogene and developmental regulator, coordinates cell adhesion and actin cytoskeletal remodeling to shape dynamic cell behaviors (e.g., cell protrusion dynamics and contractile actin cable assembly) during morphogenesis.

2009 – 2014 **Dissertation Research**
University of Iowa, Interdisciplinary Graduate Program in Molecular and Cell Biology
Advisor: Tina L. Tootle
Committee: Michael E. Dailey, Fang Lin, Pamela K. Geyer, and Peter A. Rubenstein

Dissertation Title: Prostaglandin signaling temporally regulates actin cytoskeletal remodeling during Drosophila oogenesis
Dissertation Summary: Understanding the mechanisms by which prostaglandin (PG) signaling temporally regulates actin cytoskeletal remodeling during *Drosophila* oogenesis. Results: (1) identified a number of candidate actin binding proteins acting downstream of PG signaling, including validation that Fascin is a downstream target at stage 10B, (2) characterized a novel role for PG signaling in temporal regulation of actin remodeling, at least in part, through regulation of Ena localization/activity, and (3) generated transgenic lines expressing a number of actin labeling tools commonly used for visualizing actin dynamics and characterized their utility during mid-to-late stage oogenesis.

June 2008 – August 2008 **Undergraduate Research**
Pennsylvania State University, Biochemistry and Molecular Biology
Advisor: Wendy Hanna-Rose

Project Summary: Examined the developmental and physiological roles of NAD+ biosynthetic pathways in *C. elegans*. Worked to clone wild-type and mutant alleles of PNC-1, the homolog of the yeast nicotinamidase PNC1, for expressing and purifying recombinant protein for use in *in vitro* enzymatic activity assays.

May 2007 – January 2008 **Internship**
Tazewell County Health Department, Tremont, IL
Supervisors: Melissa Goetze & Evelyn Neavear

Project Summary: Sampled wild mosquito populations and screened them for West Nile virus as part of a statewide surveillance program. Additionally, designed and implemented community outreach/education projects focused on West Nile virus and food-borne illness prevention.

PRESENTATIONS

Talks at Conferences

Triangle Fly Symposium, May 2017
Spracklen, AJ and Peifer M. Defining how the PXXP-binding partner, Crk, works with Abl to regulate cell adhesion and actin dynamics during morphogenesis.

40th Annual University of North Carolina Lineberger Comprehensive Cancer Center Postdoc/Faculty Day, September 2015
Spracklen, AJ and Peifer M. Defining how Abelson tyrosine kinase regulates cell adhesion and actin dynamics during morphogenesis.

Triangle Fly Symposium, May 2015
Spracklen, AJ and Peifer M. Defining how Abelson tyrosine kinase regulates cell adhesion and actin dynamics during morphogenesis.

Holden Comprehensive Cancer Center Scientific Retreat, June 2014
Spracklen, AJ, Kelpsch, DJ, Chen, X, Spracklen, CN, and Tootle, TL. Prostaglandins temporally regulate cytoplasmic actin bundle formation during *Drosophila* oogenesis.

55th Annual Drosophila Research Conference: Cell Biology and Cytoskeleton, March 2014
Spracklen, AJ, Kelpsch, DJ, Chen, X, Spracklen, CN, and Tootle, TL. Prostaglandins temporally regulate actin remodeling during *Drosophila* oogenesis.

Midwest Drosophila Conference, November 2011
Spracklen, AJ and Tootle, TL. Prostaglandin-dependent actin remodeling: Insights gained from *Drosophila* nurse cell dumping.

Invited Seminars

Duke University, Duke Fly Club, October 13, 2016
Spracklen, AJ and Peifer, M. A model for how multiprotein regulatory complexes regulate morphogenesis: Abelson tyrosine kinase, Crk, and embryonic development

Howard University, Department of Biology, April 23, 2014
Spracklen, AJ, Kelpsch, DJ, Chen, X, Spracklen, CN, and Tootle, TL. Prostaglandins temporally regulate cytoplasmic actin bundle formation during *Drosophila* oogenesis.

POSTERS AT CONFERENCES

(Presenter's name is underlined.)

ASCB 56th Annual Meeting: Embryogenesis I, December 2016
Spracklen, AJ, Bonner, AN, Rogers, EM, and Peifer, M. A model for how multiprotein regulatory complexes regulate morphogenesis: Abelson tyrosine kinase, Crk, and embryonic development.

Triangle Cytoskeleton Meeting, September 2016
Spracklen, AJ, Bonner, AN, and Peifer, M. A model for how multiprotein regulatory complexes regulate morphogenesis: Abelson tyrosine kinase, Crk, and embryonic development.

Triangle Fly Symposium, May 2016

Spracklen, AJ, Bonner, AN, and Peifer, M. Defining how PXXP-binding partners work with Abl to regulate cell adhesion and actin dynamics during morphogenesis.

Triangle Cytoskeleton Meeting, September 2015
Spracklen, AJ, Rogers, EM, Bilancia CG, Sumigray, KD, Allred, SC, Nowotarski, SH, Ritchie BJ, and Peifer M. Defining how Abelson tyrosine kinase regulates cell adhesion and actin dynamics during morphosgenesis.

ASCB 54th Annual Meeting: Regulation of Actin Dynamics II, December 2014
Spracklen, AJ, Kelpsch, DJ, Chen, X, Spracklen, CN, Tootle, TL. Prostaglandins temporally regulate actin remodeling during *Drosophila* oogenesis.

ASCB 53rd Annual Meeting: Regulation of Actin Dynamics II, December 2013
Spracklen, AJ, Kelpsch, DJ, Chen, X, Spracklen, CN, Tootle, TL. Prostaglandins negatively regulate *Drosophila* Enabled to temporally restrict actin remodeling.

ASCB 52nd Annual Meeting: Regulation of Actin Dynamics II, December 2012
Spracklen, AJ, Chen, X, Tootle, TL. Calling the shots: Prostaglandins temporally and spatially regulate actin remodeling during *Drosophila* nurse cell dumping.

Midwest Drosophila Conference, November 2012.
Spracklen, AJ, Chen, X, Tootle, TL. Calling the shots: Prostaglandins temporally and spatially regulate actin remodeling during *Drosophila* nurse cell dumping.

50th Annual MIKI Meeting: Medicinal Chemistry Meeting-in-Miniature, April 2012
Spracklen, AJ, Meyer, SA, Tootle, TL. *Drosophila* nurse cell dumping: Providing new insights into prostaglandin-dependent actin remodeling.

GRC: Molecular Biology of Lipids, July 2011.
Spracklen, AJ, Tootle, TL. Characterizing the enzymatic function of Pxt, the *Drosophila* Prostaglandin G/H Synthase 1.

LIPID MAPS Annual Meeting 2011: Lipidomics Impact on Systems Biology, Cancer, and Metabolic Diseases, May 2011.
Spracklen, AJ, Tootle, TL. Characterizing the enzymatic function of Pxt, the *Drosophila* Prostaglandin G/H Synthase 1.

ASCB 51st Annual Meeting: Regulation of Actin Dynamics II, December 2011
Spracklen, AJ, Meyer, SA, Tootle, TL. *Drosophila* nurse cell dumping: Providing new insights into prostaglandin-dependent actin remodeling.

ASCB 50th Annual Meeting: Actin Dynamics and Assembly III, December 2010
Spracklen, AJ, Tootle, TL. *Drosophila* nurse cell dumping: an *in vivo* model for prostaglandin-dependent actin remodeling.

Midwest Drosophila Conference, October 2010
Spracklen, AJ, Tootle, TL. *Drosophila* nurse cell dumping: a novel model for interrogating prostaglandin signaling.

PROFESSIONAL AFFILIATIONS & SERVICE ACTIVITIES

Affiliations

2012 – 2013, 2015 – Present	American Heart Association
2014 – Present	Genetics Society of America
2010 – Present	American Society for Cell Biology

Service

2016 – Present	Committee Member, Lineberger Comprehensive Cancer Center's Integrated Training in Cancer Model Systems (ITCMS) Postdoc Committee
2016	Interviewer, Chancellor's Science Scholars Program, University of North Carolina at Chapel Hill
2016	Judge, Oral Presentations, John K. Koeppe Undergraduate Honors Research Symposium, Department of Biology, University of North Carolina at Chapel Hill
2016	Judge, Undergraduate Honors Theses, Biology Department, University of North Carolina at Chapel Hill
2013/2014	Committee Member, Molecular and Cell Biology Admissions Committee
2013	Judge, Fall Undergraduate Research Festival, Iowa Center for Research by Undergraduates, University of Iowa
2013	Molecular and Cell Biology Representative, Graduate and Professional School Fair, Grinnell College
2013	Molecular and Cell Biology Representative, 5th Annual Biomedical Pre-Graduate School Conference, Carver College of Medicine, University of Iowa
2012	Judge, 53rd Eastern Iowa Science & Engineering Fair (EISEF), Cedar Rapids, IA
2012	Committee Member, Molecular and Cell Biology Annual Symposium/Retreat
2010/2011	Committee Member, Molecular and Cell Biology Scientist Survival Skills Seminar Series