

CURRICULUM VITAE

A) PERSONAL

Scott E. Williams, Ph.D.

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Home Address:
216 Lucas Lane
Chapel Hill, NC 27516

B) EDUCATION AND TRAINING

The Rockefeller University New York, NY

Advisor: Elaine Fuchs, Ph.D.

Postdoctoral Fellow 2006-2013

Research area: Role of oriented and asymmetric cell divisions in epidermal stratification

Columbia University New York, NY

Ph.D., Neurobiology & Behavior 2005

Thesis: Axon guidance at the optic chiasm

M.Phil., Neurobiology & Behavior 2001

M.A., Neurobiology & Behavior 1999

Advisor: Carol A. Mason, Ph.D.

Graduate Fellow 1998-2005

Postdoctoral Associate 2005-

2006

Cold Spring Harbor Laboratories Cold Spring Harbor, NY

Instructors: Carey Lai, Ph.D., Jim Boulter, Ph.D., Catherine Dulac, Ph.D.

Student, "Molecular Cloning of Neural Genes" summer course

2000

CytoTherapeutics (Stem Cells, Inc.) Lincoln, RI

Supervisor: Rebecca Li, Ph.D.

Research Associate, Device Biology group 1996-1998

Brown University Providence, RI

A.B., Biology 1996

C) PROFESSIONAL EXPERIENCE

University of North Carolina at Chapel Hill Chapel Hill, NC

Hill, NC

Research Areas: oriented cell divisions; epidermal development; oral stem cells; oral cancer; cleft palate

Associate Professor Department of Pathology & Laboratory Medicine present	2019-
Assistant Professor, Department of Pathology & Laboratory Medicine 2019	2013-
Full Member, Lineberger Comprehensive Cancer Center Adjunct Faculty, Department of Biology present	2013-present 2015-
Member, Center for Gastrointestinal Biology & Disease present	2015-
Executive Committee, Graduate Curriculum in Genetics & Molecular Biology present	2015-
Executive Committee, Graduate Curriculum in Pathobiology & Translational Science present	2016-
Executive Committee, Graduate Curriculum in Cell Biology & Physiology Member, Curriculum in Biology present	2017-present 2015-
Member, Curriculum in Oral Biology present	2014-

D) HONORS AND AWARDS

Visiting Scientist, <i>University of Cologne</i>	2019
Invited Faculty Speaker, <i>ASCB Triangle Cytoskeleton Meeting</i>	2018
Joe W. Grisham Award for Excellence in Graduate Student Teaching, <i>Department of Pathology</i> 2017	
Pilot/Feasibility Award, <i>Center for Gastrointestinal Biology and Disease</i>	2016
Kimmel Scholar Award, <i>Sidney Kimmel Foundation for Cancer Research</i>	2015
Keynote Speaker, <i>UNC Mitosis Symposium</i>	2015
Junior Faculty Development Award, <i>IBM/UNC Provost's Office</i>	2015
Travel Award, <i>International Society for Stem Cell Research, Vancouver, Canada</i>	2014
ATIP-Avenir Young Investigator, <i>CNRS/INSERM</i>	2012
Poster Prize, <i>European Association for Cancer Research</i>	2011
Postdoctoral Fellowship Award, <i>American Cancer Society</i>	2007
Postdoctoral Training Grant Recipient, <i>NIH/NCI</i>	2006
Predocotrinal Training Grant Recipient, <i>NIH/NEI</i>	2001
Dean's Scholarship, <i>Columbia University Graduate School of Arts and Sciences</i>	1998
Elected Member, <i>Sigma Xi Scientific Research Society</i>	1995
Merit Scholar Winner, <i>National Merit Scholarship Corporation</i>	1992

E) BIBLIOGRAPHY AND PRODUCTS OF SCHOLARSHIP

PUBLISHED PEER-REVIEWED ARTICLES

Full bibliography from NCBI:

<https://www.ncbi.nlm.nih.gov/sites/myncbi/scott.williams.3/bibliography/40127472/public/?sort=date&direction=descending>

UNC-CHAPEL HILL

1. Lough KJ, Spitzer DC, Bergman AJ, Wu JJ, Byrd KM, **Williams SE**. Cleft palate is caused by disruption of the nectin-afadin cell-cell adhesion complex. *Development* 2020, doi: 10.1242/dev.189241, Published 18 June 2020 [Special issue on “The Origins and Mechanisms of Developmental Disorders”]
2. Lough KJ, Byrd KM, Descovich CP, Spitzer DC, Bergman AJ, Beaudoin III GM, Reichardt LF and **Williams SE**. Telophase correction refines division orientation in stratified epithelia. *eLife* 2019 Dec 13; 8. pii: e49249. doi: 10.7554/eLife.49249. [PMID: 31833472](#)
3. Byrd KM, Piehl NC, Patel JH, Huh WJ, Sequeira I, Lough KJ, Wagner BL, Marangoni P, Watt FM, Klein OD, Coffey RJ, **Williams SE**. Heterogeneity within stratified epithelial stem cell populations maintains the oral mucosa in response to physiological stress. *Cell Stem Cell* 2019 Dec 5; 25(6): 814-29. [PMID: 31809739](#)
4. Carper MB, Troutman S, Wagner BL, Byrd KM, Selitsky SR, Parag-Sharma K, Henry EC, Li W, Parker JS, Montgomery SA, Cleveland JL, **Williams SE**, Kissil JL, Hayes DN, Amelio AL. An immunocompetent mouse model of HPV16(+) head and neck squamous cell carcinoma. *Cell Reports* 2019 Nov 5; 29(6):1660-1674.e7. doi: 10.1016/j.celrep.2019.10.005. [PMID: 31693903](#)
5. Hwang BJ, Zhang Y, Brozowski JM, Liu Z, Burette S, Lough K, Smith CC, Shan Y, Chen J, Li N, **Williams S**, Su M, Gooze P, Thomas NE, Liu Z. The dysfunction of BP180/collagen XVII in keratinocytes promotes melanoma progression. *Oncogene* 2019; 38(50):7491-7503. doi: 10.1038/s41388-019-0961-9. [PMID: 31435021](#)
6. Saito R, Smith CC, Utsumi T, Bixby LM, Kardos J, Wobker SE, Stewart KG, Chai S, Manocha U, Byrd KM, Damrauer JS, **Williams SE**, Vincent BG, Kim WY. Molecular subtype specific immunocompetent models of high grade urothelial carcinoma reveal differential neoantigen expression and response to immunotherapy. *Cancer Research* 2018 Jul 15; 78(14): 3954-68. [PMID: 29784854](#) [Selected for Cover]
7. Zhang Y, Hwang BJ, Liu Z, Li N, Lough K, **Williams SE**, Chen J, Burette SW, Diaz LA, Su MA, Xiao S, Liu Z. BP180 dysfunction triggers spontaneous skin inflammation in mice. *Proc Natl Acad Sci USA* 2018 Jun 19; 115(25): 6434-9. [PMID: 29866844](#)
8. Lough KJ, Byrd KM, Spitzer DC, **Williams SE**. Closing the gap: mouse models to study adhesion in secondary palatogenesis. *J Dent Res* 2017; 96(11): 1210-20. [Special issue on Orofacial Clefting, Craniofacial and Dental Anomalies] [PMID: 28817360](#)
9. Byrd KM, Lough KJ, Patel JH, Descovich CP, Curtis TA, **Williams SE**. LGN plays distinct roles in oral epithelial stratification, filiform papilla morphogenesis and hair follicle development. *Development* 2016 Aug 1; 143(15): 2803-17. [PMID: 27317810](#) [Selected for cover, F1000 reviewed]
10. **Williams SE**[‡], Garcia I, Crowther AJ, Li S, Stewart A, Liu H, Lough KJ, O'Neill S, Veleta K, Oyarzabal EA, Merrill JR, Shih YY, Gershon TR[‡]. Aspm sustains postnatal cerebellar neurogenesis and medulloblastoma growth in mice. *Development* 2015 Nov 15; 142(22): 3921-32. [PMID: 26450969](#) [‡]co-corresponding authors
11. **Williams SE**, Ratliff LA, Postiglione MP, Knoblich JA, Fuchs E. Par3-mInsc and Gai3 cooperate to promote oriented epidermal cell divisions through LGN. *Nat Cell Biol* 2014 Aug; 16(8): 758-69. [PMID: 25016959](#) [F1000 reviewed]
12. **Williams SE**, Fuchs E. Oriented divisions, fate decisions. *Curr Opin Cell Biol* 2013 Dec; 25(6): 749–58. [PMID: 24021274](#)

The Rockefeller University (post-doctoral)

1. Ezratty EJ, Stokes N, Chai S, Shah AS, **Williams SE**, Fuchs E. A role for the primary cilium in Notch signaling and epidermal differentiation during skin development. *Cell* 2011 Jun 24; 145(7): 1129-41. [PMID: 21703454](#) [F1000 reviewed]
2. Luxenburg C, Pasolli HA, **Williams SE**, Fuchs E. Developmental roles for Srf, cortical cytoskeleton and cell shape in epidermal spindle orientation. *Nat Cell Biol* 2011 Mar; 13(3): 203-14. [PMID: 21336301](#) [F1000 reviewed]
3. **Williams SE**, Beronja S, Pasolli HA, Fuchs E. Asymmetric cell divisions promote Notch-dependent epidermal differentiation. *Nature* 2011 Feb 17; 470(7334): 353-8. [PMID: 21331036](#) [Comment in *Nat Rev Genetics* 12: 226; F1000 reviewed].
4. Beronja S, Livshits G, **Williams S**, Fuchs E. Rapid functional dissection of genetic networks via tissue-specific transduction and RNAi in mouse embryos. *Nat Med* 2010;16: 821-7. [PMID: 20526348](#)
5. Perez-Moreno M, Song W, Pasolli HA, **Williams SE**, Fuchs E. Loss of p120 catenin and links to mitotic alterations, inflammation and skin cancer. *Proc Nat Acad Sci USA* 2008 Oct 7; 105(40): 15399-404. [PMID: 18809907](#) [F1000 reviewed]

Columbia University (doctoral)

1. Petros TJ, **Williams SE**, Mason CA. Temporal regulation of EphA4 in astroglia during murine retinal and optic nerve development. *Mol Cell Neurosci* 2006 May-Jun; 32(1-2): 49-66. [PMID: 16574431](#)
2. **Williams SE**, Grumet M, Colman DR, Henkemeyer M, Mason CA, Sakurai T. A role for Nr-CAM in the patterning of binocular visual pathways. *Neuron* 2006 May 18; 50(4): 535-47. [PMID: 16701205](#) [Comment in *Neuron* 50: 519-21]
3. Herrera E, Marcus R, Li S, **Williams SE**, Erskine L, Lai E, Mason C. Foxd1 is required for proper formation of the optic chiasm. *Development* 2004 Nov; 131(22): 5727-39. [PMID: 15509772](#)
4. Menzies AS, Aszodi A, **Williams SE**, Pfeifer A, Wehmen AM, Goh KL, Mason CA, Fassler R, Gertler FB. Mena and vasodilator-stimulated phosphoprotein are required for multiple actin-dependent processes that shape the vertebrate nervous system. *J Neurosci* 2004 Sep 15; 24(37): 8029-38. [PMID: 15371503](#)
5. **Williams SE**, Mason CA, Herrera E. The optic chiasm as a midline choice point. *Curr Opin Neurobiol* 2004 Feb; 14(1): 51-60. Review. [PMID: 15018938](#)
6. **Williams SE**, Mann F, Erskine L, Sakurai T, Wei S, Rossi DJ, Gale NW, Holt CE, Mason CA, Henkemeyer M. Ephrin-B2 and EphB1 mediate retinal axon divergence at the optic chiasm. *Neuron* 2003 Sep 11; 39(6): 919-35. [PMID: 12971893](#) [Comment in *Neuron* 39: 885-8; F1000 reviewed]
7. Erskine L, **Williams SE**, Brose K, Kidd T, Rachel RA, Goodman CS, Tessier-Lavigne M, Mason CA. Retinal ganglion cell axon guidance in the mouse optic chiasm: expression and function of Robos and Slits. *J Neurosci* 2000; 20: 4975-82. [PMID: 10864955](#)

CytoTherapeutics (pre-doctoral)

1. Li RH, **Williams S**, Burkstrand M, Roos E. Encapsulation matrices for neurotrophic factor-secreting myoblast cells. *Tissue Engineering* 2000; 6:151-63. [PMID: 10941210](#)

2. Li RH, **Williams SE**, White M, Rein DR. Dose control with cell lines used for encapsulated cell therapy. *Tissue Engineering* 1999; 5: 453-66. [PMID: 10586101](#)
3. Li RH, White M, **Williams SE**, Hazlett T. Poly(vinyl alcohol) synthetic polymer foams as scaffolds for cell encapsulation. *J Biomaterials Sci: Polymer Ed* 1998; 9: 239-58. [PMID: 9556760](#)

PUBLISHED PEER-REVIEWED ABSTRACTS

1. Byrd KM, Piehl NC, Patel JH, Huh WJ, Sequeira I, Wagner BL, Marangoni P, Klein OD, Watt FM, Coffey RJ, **Williams SE**. Lrig1 marks quiescent epithelial stem cells in the oral cavity. *J Dent Res* 2018; 98 Spec Iss A: 3515. [Abstract](#)
2. Patiño Descovich C, Lough KJ, Spizer D, Yom J, **Williams SE**. Uncovering the spindle-orienting function of AGS3 in epidermal morphogenesis. *Mol Biol Cell Suppl* 2018; 29: 3063 (Abstract #P2282)
3. Byrd KM, Patel JH, **Williams SE**. Infrequently Dividing Oral Epithelial Cells Reside in Posterior Palatal Niches. *J Dent Res* 2018; 97 Spec Iss A: 1206. [Abstract](#)
4. Carper MB, Troutman S, Byrd KM, Wagner B, Henry EC, Montgomery SA, Williams SE, Kissil JL, Amelio AL. Novel mouse models of high-risk HPV-related oral cancers. *Proceedings of the American Association for Cancer Research Annual Meeting 2018*; 2018 Apr 14-18; Chicago, IL. Philadelphia (Pa): AACR; Cancer Res 2018; 78(13 Suppl): 1032. [Abstract](#)
5. Patiño Descovich C, Lough KJ, Spizer D, Mac M, **Williams SE**. Dissecting the function of classical cadherins in stratified epithelial morphogenesis. *Mol Biol Cell Suppl* 2017; 28: 5513 (Abstract #P3414)
6. Lough KJ, Byrd KM, Patiño Descovich C, Spitzer DC, Bergman AJ, **Williams SE**. Adherens Junction components regulate mitotic spindle orientation in embryonic epidermis. *Mol Biol Cell Suppl* 2017; 28: 5514 (Abstract #P3415)
7. Byrd KM, Patel JH, Mac MT, **Williams SE**. Identification of label-retaining cells in upper aerodigestive tract epithelial niches. *J Dent Res* 2017; 96 Spec Iss A: 1865. [Abstract](#)
8. Carper MB, Troutman S, Byrd KM, Henry EC, Montgomery SA, **Williams SE**, Kissil JL, Amelio AL. Characterizing a Novel HPV-driven GEMM of Oral Squamous Cell Carcinoma. *J Dent Res* 2017; 96 Spec Iss A: 0896 [Abstract](#)
9. Byrd KM, Lough KJ, Curtis TA, Patel JH, **Williams SE**. Dorsal Tongue Epithelia Require Oriented Divisions to Organize Filiform Papillae. *J Dent Res* 2016; 95 Spec Iss A: 73. [Abstract](#)
10. Byrd KM, Lough KJ, Curtis TA, **Williams SE**. LGN/GPSM2 Controls Division Orientation in Developing Murine Oral Epithelia. *J Dent Res* 2015; 94 Spec Iss A: AHAT0001. [Abstract](#)

INVITED TALKS AT INTERNATIONAL CONFERENCES

1. "A population of oral epithelial label-retaining cells resides in a discrete niche in palatal rugae ridges." International Society for Stem Cell Research Annual Meeting, Boston, MA, June 13-17th, 2017.
2. "Rugged terrain: the search for oral epithelial stem cells." Epithelial Differentiation & Keratinization Gordon Research Conference, Barga, Italy, May 7-12th, 2017.
3. "Par3-Insc and G-alpha-i3 cooperate to promote oriented epidermal divisions." International Society for Stem Cell Research Conference, Vancouver, BC, Canada, June 18-21st, 2014.

4. "Asymmetric cell divisions promote Notch-dependent epidermal differentiation." International Society for Stem Cell Research Conference, Toronto, ON, Canada, June 15-18th, 2011.
5. "LGN, NuMA, and Dctn1 regulate asymmetric cell divisions and promote Notch-dependent epidermal differentiation." Cell Cycle, Cancer and Development Conference, Saint-Malo, France, May 25-28th, 2011.

INVITED TALKS BY TRAINEES AT INTERNATIONAL CONFERENCES (SPEAKER IN BOLD)

1. "A novel, Afadin-dependent rescue mechanism corrects oblique anaphase division orientation in the embryonic epidermis." **K.J. Lough**, K.M. Byrd, C. Patiño Descovich, D.C. Spitzer, S.E. Williams. Santa Cruz Developmental Biology Meeting, Santa Cruz, CA, August 11-15th, 2018.
2. "Infrequently dividing oral epithelial cells reside in posterior palatal niches." **K.M. Byrd**[§], J.H. Patel, N. Piehl, S.E. Williams. International Association for Dental Research (IADR)-Pan European Region (PER) 96th Annual General Session & Exhibition, London, England, July 25-28th, 2018.
[§]Second Prize winner, IADR Unilever Hatton Competition, Senior Category
3. "Infrequently dividing oral epithelial cells reside in posterior palatal niches." **K.M. Byrd**[‡], J.H. Patel, N. Piehl, S.E. Williams. American Association for Dental Research (AADR)/Canadian Association for Dental Research (CADR) 47th Annual Meeting & Exhibition, Ft Lauderdale, FL, March 21-24th, 2018.
[‡]First Prize winner, AADR Hatton Competition, Post-doctoral Category
4. "Rolling off the tongue: Oriented cell divisions precede polarized filiform papillae morphogenesis," **K.M. Byrd**, K.J. Lough, M. Mac, J.H. Patel, S.E. Williams. Triangle Developmental Biology Symposium, Duke University, Durham, NC, April 5th, 2016.
5. "Dorsal tongue epithelia require oriented divisions to organize filiform papillae." **K.M. Byrd**, K.J. Lough, T.A. Curtis, J.H. Patel, S.E. Williams. American Association for Dental Research (AADR) 45th Annual Meeting & Exhibition, Los Angeles, CA, March 16-19th, 2016.
6. "Tongue and cheek: LGN-mediated spindle orientation is essential for oral epithelial development." **K.M. Byrd**, K.J. Lough, T.A. Curtis, J.H. Patel, S.E. Williams. Craniofacial Morphogenesis and Tissue Regeneration Gordon Research Seminar, Ventura, CA, March 12-17th, 2016.
7. "LGN/GPSM2 Controls Division Orientation in Developing Murine Oral Epithelia," **K.M. Byrd**[†], K. Lough, T.A. Curtis, S.E. Williams. American Association for Dental Research (AADR) 44th Annual Meeting & Exhibition of the AADR. Boston, MA, March 11-14th, 2015.
[†]First Prize winner, AADR Johnson & Johnson Hatton Competition, Senior Category

PRESENTATIONS AT NATIONAL AND INTERNATIONAL CONFERENCES (PRESENTERS IN BOLD)

1. "Determining the role of translesion synthesis proteins MAGE-A4 and RAD18 in head and neck squamous cell carcinomas." **B.L. Wagner**[§], J. Guo, Y. Gao, Q. Gu, D. Wu, C. Vaziri and S.E. Williams. DNA Damage, Mutation & Cancer Gordon Research Conference, Ventura, CA, USA, February 29-March 6, 2020.
[§]Poster prize winner

2. "The Lrig family proteins dynamically mark unique subpopulations in oral epithelia." **K.M. Byrd**, N.C. Piehl, J.H. Patel, W.-J. Huh, I. Sequeira, B.L. Wagner BL, K.J. Lough, P. Marangoni, F.M. Watt, O.D. Klein, R.J. Coffey, and S.E. Williams. Epithelial Differentiation & Keratinization Gordon Research Conference, Newry, ME, USA, July 7-12th, 2019.
3. "Better late than never: telophase spindle reorientation mediated by adherens junction proteins." K.J. Lough, K.M. Byrd, C. Patiño-Descovich and **S.E. Williams**. Cell Contact & Adhesion Gordon Research Conference, Les Diablerets, Switzerland, June 2-7th, 2019.
4. "A novel, Afadin-dependent rescue mechanism corrects oblique anaphase division orientation in the embryonic epidermis." **K.J. Lough**, K.M. Byrd, C. Patiño Descovich, D.C. Spitzer, **A.J. Bergman** and S.E. Williams. Triangle Cytoskeleton Meeting, Saxapahaw, NC, September 23-24th, 2018.
5. "Uncovering the spindle-orienting function of AGS3 in epidermal morphogenesis." **C. Patiño Descovich**, K.J. Lough, D.C. Spitzer, **J. Yom** and S.E. Williams. Triangle Cytoskeleton Meeting, Saxapahaw, NC, September 23-24th, 2018.
6. "A novel, Afadin-dependent rescue mechanism corrects oblique anaphase division orientation in the embryonic epidermis." K.J. Lough, K.M. Byrd, C. Patiño Descovich, D.C. Spitzer, **S.E. Williams**. Tissue Niches and Resident Stem Cells in Adult Epithelia Gordon Research Conference, Waterville Valley, NH, August 19-24th, 2018.
7. "Identification of an infrequently dividing population of oral epithelial progenitors with properties of stem cells. **K.M. Byrd**, J.H. Patel, N. Piehl and S.E. Williams. Tissue Niches and Resident Stem Cells in Adult Epithelia Gordon Research Conference, Waterville Valley, NH, August 19-24th, 2018.
8. "Dissecting the function of classical cadherins in stratified epithelial morphogenesis." **C. Patiño Descovich**, K.J. Lough, D.C. Spitzer, M.T. Mac and S.E. Williams. American Society for Cell Biology/EMBO Annual Meeting, Philadelphia, PA, December 2-6th, 2017.
9. "Adherens Junction components regulate mitotic spindle orientation in embryonic epidermis." **K.J. Lough**, K.M. Byrd, C. Patiño Descovich, D.C. Spitzer, A.J. Bergman and S.E. Williams. American Society for Cell Biology/EMBO Annual Meeting, Philadelphia, PA, December 2-6th, 2017.
10. "Dissecting the function of classical cadherins in stratified epithelial morphogenesis." **C. Patiño Descovich**, K.J. Lough and S.E. Williams. Cell Contact & Adhesion Gordon Research Conference, Andover, NH, June 18-23rd, 2017.
11. "Identification of label-retaining cells in upper aerodigestive tract epithelial niches." **K.M. Byrd**, J.H. Patel, M.T. Mac and S.E. Williams. American Association for Dental Research 46th Annual Meeting, San Francisco, CA, March 22-25th, 2017.
12. "Afadin regulates epithelial spindle orientation and adhesion maturation." **K.J. Lough***, K.M. Byrd, D.C. Spitzer, M.T. Mac, S.E. Williams. Signaling by Adhesion Receptors Gordon Research Conference, Lewiston, ME, June 19-24th, 2016.
* Winner, "Most active participant," Gordon Research Seminar
13. "Dorsal tongue epithelia require oriented divisions to organize filiform papillae." **K.M. Byrd**, K.J. Lough, J.H. Patel and S.E. Williams, American Association for Dental Research 45th Annual Meeting, Los Angeles, CA, March 16-19th, 2016.

14. "Diverse roles of the spindle orientation protein LGN in oral epithelial development." K.M. Byrd, J.M. Patel and S.E. Williams. Epithelial Differentiation & Keratinization Gordon Research Conference, Newry, ME, July 12-17th, 2015.
15. "Mechanisms of oral epithelial differentiation." K.M. Byrd, J.M. Patel and S.E. Williams. Developmental Biology Gordon Research Conference, South Hadley, MA, June 21-26th, 2015.
16. "LGN/GPSM2 controls cellular division orientation in developing murine oral epithelia." K.M. Byrd, T.A. Curtis, K.J. Lough and S.E. Williams, American Association for Dental Research 44th Annual Meeting, Boston, MA, March 11-14th, 2015.

INVITED TALKS AND SEMINARS

1. "Generation and maintenance of stratified epithelia." University of Cologne, CECAD, Cologne, Germany, March 20, 2019 (*Visiting Guest Scientist*).
2. "Better late than never: telophase spindle reorientation mediated by adherens junction proteins." University of Cologne, CECAD, Cologne, Germany, March 18, 2019 (*Visiting Guest Scientist*).
3. "Stratified epithelia in development, regeneration and disease." Department of Physiology & Biophysics, University of Illinois-Chicago, Chicago, IL, November 2, 2018.
4. "Canoe feel it? Adherens junction proteins, tension, and epidermal architecture." 5th Annual Triangle Cytoskeleton Meeting, Saxapahaw, NC, September 24, 2018 (*Invited Faculty Speaker*).
5. "Stratified epithelia in development, regeneration and disease." Black Family Stem Cell Institute, Mount Sinai School of Medicine, September 7, 2018.
6. "Spindle orientation in oral epithelia: development, stem cells and cancer." North Carolina Central University, Durham, NC, February 21, 2018.
7. "Oral epithelia: development, stem cells and cancer." Center for Gastrointestinal Biology and Disease Seminar Series, Chapel Hill, NC, August 24, 2017.
8. "Divisions and decisions: spindle orientation in stratified epithelial development, stem cells and cancer." Spanish National Cancer Research Centre (CNIO), Madrid, Spain, March 27, 2017.
9. "Oral epithelia: stem cells, development and cancer." Lineberger Junior Faculty Forum, Chapel Hill, NC, February 14, 2017.
10. "Oral epithelia: development, stem cells and cancer." Gastrointestinal Research Conference, Duke University, Durham, NC, January 17, 2017.
11. "Divisions and decisions: building stratified epithelia through oriented cell divisions." Department of Molecular, Cell, and Developmental Biology Spring Seminar Series, University of California at Santa Cruz, Santa Cruz, CA, February 29, 2016.
12. "Divisions and decisions: building stratified epithelia through oriented cell divisions." Fred Hutchinson Cancer Research Center, Seattle, WA, February 26, 2016.
13. "New approaches to study oral epithelial development and cancer." Oral Biology Seminar Series, UNC School of Dentistry, Chapel Hill, NC, February 23, 2016.
14. "Divisions and decisions: spindle orientation and epithelial stem cell fate." Center for Gastrointestinal Biology and Disease Stem Cell Seminar Series, Chapel Hill, NC, December 14, 2015.

15. "Applied mitosis: spindle orientation and cell fate." Keynote Address, Mitosis Symposium. Chapel Hill, NC, October 16, 2015.
16. "Divisions & decisions: spindle orientation in epithelial morphogenesis." North Carolina State University, Department of Molecular Biomedical Sciences, Raleigh, NC, June 6, 2015.
17. "Spindle orientation from development to cancer." UNC Lineberger Comprehensive Cancer Center Cancer Cell Biology/Molecular Therapeutics Retreat, Rizzo Center, Chapel Hill, NC, December 1, 2014.
18. "Divisions & decisions: the role of spindle orientation in epithelial morphogenesis." UNC Chapel Hill Department of Biology Seminar Series, Chapel Hill, NC, September 2, 2014.
19. "Divisions and decisions: cell polarity, spindle orientation and epithelial cell fate." UNC Chapel Hill Department of Cell Biology & Physiology Seminar Series, Chapel Hill, NC, May 5, 2014.
20. "Divisions and decisions: cell polarity, spindle orientation and epithelial cell fate." UNC Chapel Hill Department of Genetics Wednesday Research Colloquium, Chapel Hill, NC, April 9, 2014.
21. "Oriented divisions and fate decisions." UNC Chapel Hill Developmental Biology Club, Chapel Hill, NC, September 16, 2013.

DIGITAL WEBINARS

"Visualizing divisions and development in 3D." Nature.com webcast, August 30, 2017.
<http://www.nature.com/webcasts/event/visualizing-divisions-and-development-in-3d/>

F) TEACHING ACTIVITIES

COURSE INSTRUCTION

- Director and lecturer, PATH725: "*Cancer Pathobiology*," 2020-present; enrollment: 18 students (2020)
- Lecturer, CBPH 895: "*RCR- Responsible Conduct of Research*," 2018-present, on the topic of "Mentor/mentee relationships"; enrollment: 26 students (2018), 19 students (2019)
- Lecturer, CBPH 851: "*Modern Concepts in Cell Biology II*," 2018-present, on the topic of "Epidermal Cell Differentiation"; enrollment: 8 students (2018), 10 students (2019), 6 students (2020)
- Research sponsor, BIOL 395(H): "*(Honors) Undergraduate Research in Biology*," 2017-present, for Jack Kabrich (2017-18), Ismael Gomez (2017-18), Jeremy Morowitz (2017-2018), Aidin Alejo (2018), Henry Tilghman (2018), Nicole Nay (2018), Anna Lin (2018-2019), Natalie Huyett (2018-2019), Ranan Phookan (2019), Jewell Tinsley (2019), Jasleen Chaddha (2020)
- Research supervisor, BIOL 692H: "*Honors Research in Biology*," 2017-present, for Jeet Patel^{*,†,§} (2017), Danielle Spitzer^{*,§} (2017), Abby Bergmann[†] (2019)
 - * Graduated with Highest Honors
 - † Winner of Brantley Award for excellence in molecular, cell and developmental biology research
 - § Recipient of National Science Foundation Graduate Research Fellowship
- Undergraduate thesis grader, BIOL 692H: "*Honors Research in Biology*," 2017-present; 3 students (2017), 7 students (2018), 4 students (2019)

- Instructor (faculty co-mentor), BBSP 902: “Seminar in Biological and Biomedical Sciences,” 2016-present; enrollment: 14 students (2016-2017), 18 students (2017-2018), 15 students (2018-2019), 16 students (2019-2020)
- Lecturer, PATH 715: “Molecular and Cellular Pathophysiology of Disease: Systemic Pathology,” 2015-present, on the topic of “Diseases of the Skin”; enrollment: 15 students (2015), 17 students (2016), 16 students (2017), 20 students (2018), 11 students (2019), 11 students (2020)
- Research supervisor, BIOL 295/395: “Undergraduate Research in Biology,” 2015-present, for Valentina Rivadeneira (2015), Jeet Patel (2016), Danielle Spitzer (2016), Abigail Bergman (2018), Jina Yom (2018-2019), Jason Guo (2018-2019), Natalie Piehl (2019)
- Lecturer, PHCO 744: “Topics on Stem Cells and Development,” 2014-present, on the topics of “Asymmetric Cell Division” and “Cancer Stem Cells,” (2014); “Current Topics in Stem Cell Research” and “Asymmetric Cell Division,” (2016); “Current Topics in Stem Cell Research,” “Mammary Stem Cells,” “Epidermal Stem Cells I,” “Epidermal Stem Cells II”; enrollment: 11 students (2014), 16 students (2016), 14 students (2018), 11 students (2020)
- Lecturer, PATH 713: “Molecular and Cellular Pathophysiologic Basis of Disease: Mechanisms of Disease,” 2013-present, on the topics of “Cancer Stem Cells/Cell Biology,” 2013-present; “Cancer Genomics,” 2015-present; and “Cancer Genetics,” 2019-present; enrollment: 23 students (2015); 20 students (2016); 21 students (2017), 13 students (2018); 11 students (2019)

GRADUATE THESIS SUPERVISOR

- Bethany Wagner, Graduate Program in Pathobiology & Translational Science, 2017-present
- Carlos Patiño Descovich, Curriculum in Cell Biology and Physiology, 2016-present
- Kendall Lough, Curriculum in Genetics and Molecular Biology, 2014-present (successful defense March 9, 2020).
Thesis title: “Multiple roles of afadin in epithelial morphogenesis.”
- BBSP student rotation supervisor, 2013-present: Justine Moore (2013), Kendall Lough (2013), Kevin Byrd (2014), Lyndsay Ratliff (2014), Benjamin Roberts (2015), Zachary Opheim (2015), Carlos Patiño Descovich (2015), Bethany Wagner (2016), Abigail Cleveland (2018), Ismael Gomez (2019)
- Kevin Byrd, Graduate Program in Oral Biology, 2014-2017 (successful defense November, 2017) *Thesis title: “How to make a mouth: oral epithelia require locoregional mitotic diversity in morphogenesis and in maintenance.”*

UNDERGRADUATE HONORS THESIS SUPERVISOR

- Abigail Bergman (2019): Highest Honors, Phi Beta Kappa, Stephen Brantley Award
Thesis title: “Developing a Refined Palate: Investigating the Role of the Nectin-Afadin Pathway in Mammalian Palatogenesis”
- Danielle Spitzer (2017): Highest Honors, Phi Beta Kappa, National Science Foundation Graduate Research Fellowship
Thesis title: “Investigating the expression of nectin-4 during palatogenesis and production of shRNA lentiviruses targeting Nectin-2 and Nectin-4.” Awarded Highest Honors
- Jeet Patel (2017): Highest Honors, Phi Beta Kappa, Stephen Brantley Award (excellence in molecular, cell and developmental biology research), Lawrence Gilbert Award (excellence in serving as a supplemental instructor, peer mentor, or tutor in a biology class), National Science Foundation Graduate Research Fellowship
Thesis title: “Rare Label Retaining Cells in Palatal Epithelia Display Characteristics of Reserve Stem Cells.” Awarded Highest Honors

UNDERGRADUATE RESEARCH SUPERVISOR

- Summer of Learning and Research (SOLAR): Christian Agosto-Burgos[§], University of Puerto Rico-Cayey (2015)
[§] UNC PREP Scholar (2016), UNC BBSP PhD student (2017-present)
- Undergraduate research supervisor, 2013-present: Akankshya Jena (2019-present), Megan Hastings (2019-present), Jessica Wu (2019-present), Deep Upadhyay (2019), Montia Daniels (2018-2019), Fahad Shah (2018-present), Jason Guo (2017-present), Natalie Piehl (2017-present), Abby Bergman (2016-2019), Jina Yom (2016-2019), Jeet Patel (2014-2017), Danielle Spitzer (2014-2017), Savannah Loehr (2015-2016); Valentina Rivadeneira (2013-2015), Joshua Garrett (2013-2014)

OTHER TRAINING

- Melissa Du (2019-2020): High school summer intern (2019); NCSSM Special Study Option research (2020)
- Michelle Mac[†] (2015-2016): Research technician
[†] UNC BBSP PhD student (2016-present)
- Anthony Curtis (2013-2015): Research technician

GRADUATE THESIS COMMITTEES

- Pathobiology & Translational Science: Taylor Dismuke, Timothy Gershon lab (2020-present), *Chair*
- Pathobiology & Translational Science: Alina Hamilton, Melissa Troester and Katie Hoadley labs (2019-present)
- Oral and Craniofacial Biomedicine: Deepika Jayaprakash, Cyrus Vaziri lab (2019-present)
- Pathobiology & Translational Science: Cherise Glodowski, Chuck Perou lab (2019-present), *Chair*
- Pathobiology & Translational Science: Angana Mukherjee, Al Baldwin lab (2019-present), *Chair*
- Pathobiology & Translational Science: Matthew Combs, Joan Taylor lab (2019-present), *Chair*
- Cell Biology & Physiology: Samuel Honeycutt, Lori O'Brien lab (2018-present)
- Cell Biology & Physiology: Natalie Harris, Kathleen Caron lab (2018-present), *Chair*
- Cell Biology & Physiology: Molly Kulikauskas, Victoria Bautch lab (2018-present)
- Cell Biology & Physiology: Natalie Tanke, Victoria Bautch lab (2018-present)
- Pathobiology & Translational Science: Abigail Shelton, Ryan Miller lab (2018-present)
- Pathobiology & Translational Science: Erin Smithberger, Ryan Miller lab (2018-present), *Chair*
- Genetics & Molecular Biology: Kia Perez-Vale, Mark Peifer lab (2017-present)
- Genetics & Molecular Biology: Adele Musicant, Antonio Amelio lab (2016-2019)
- Pathobiology & Translational Science: Nicole Fleming, Jiandong Liu lab (2015-2019), successful defense February 4, 2019)
- Genetics & Molecular Biology: Lyndsay Ratliff Wylie, Victoria Bautch lab (2015-2018, successful defense June, 2018)
- Genetics & Molecular Biology: Caralynn Wilczewski, Frank Conlon lab (2014-2018, successful defense June, 2018); *winner, Magnuson Award*
- Microbiology & Immunology: Bin-Jin Hwang, Zhi Liu lab (2013-2017, successful defense November, 2017)

GRAND ROUNDS, DEPARTMENT OF PATHOLOGY & LABORATORY MEDICINE

- "Stratified epithelia in development, regeneration and disease." September 20, 2018.

- “More than just cell division: why mitotic spindle orientation matters.” September 3, 2015.
- “Oral epithelia: from development to cancer.” November 13, 2014.

G) GRANTS

ACTIVE

NIH/NCI 2018-2023
 Research Project Grant R01 CA215347-01A1
 Title: “Defining Mechanisms of Pathological Trans-Lesion Synthesis During Carcinogenesis”
 Role on grant: PI with Cyrus Vaziri (UNC)

BSF (Binational Science Foundation) 2020-2024
 Project ID 2019230
 Title: “Exploring the involvement of the actin cytoskeleton and its associated adhesion structures in spindle orientation”
 Role on grant: PI with Chen Luxenburg (Tel Aviv University)

NIH/NIDCR
 Mentored Clinical Scientist Research Career Development Award K08 DE026537-01
 2017-2022
 Title: “Mechanisms of Oral Epithelial Differentiation”
 Role on grant: Sponsor (Kevin Byrd, PI/trainee)

University Cancer Research Fund
 2018-2020
 Lineberger CCC Tier 2 Developmental Research Grant
 Title: “Role of Hotspot p53 Mutations and ‘Reverse’ Sexual Dimorphism in Oral and Esophageal Squamous Cell Carcinoma”
 Role on grant: PI

NIH/NICHD 2015-2020
 Research Project Grant R01 HD060860-1A1
 Title: “Adrenomedullin Signaling at the Maternal-Fetal Interface”
 Role on grant: Investigator (Kathleen Caron, PI)

PENDING

NIH/NIAMS 2021-2026
 Research Project Grant R01 AR077591-01
 Impact score: 14 (2nd percentile)
 Title: “Intrinsic and extrinsic regulators of spindle orientation in mammalian stratified epithelia”
 Role on grant: PI

NIH/NIDCR 2020-2024
 Predoctoral to Postdoctoral Transition Award F99 DE030374-01
 Impact score: 22
 Title: “Investigating p53 hotspot mutations in head and neck squamous cell carcinomas”
 Role on grant: Sponsor (Bethany Wagner, PI/trainee)

COMPLETED

NIH/NIDCR 2019 Predoctoral fellowship F31 DE026956-01 Title: "Cell-cell adhesion in regulation of mammalian palatogenesis" Role on grant: Sponsor (Kendal Lough, PI/trainee)	2017-
Center for Environmental Health and Susceptibility Interdisciplinary Pilot Project Award ID-PPP 2016-01 Title: "Defining MAGEA4-RAD18 as a Novel Mutagenic Driver of Environmental Carcinogenesis" Role on grant: Multi-PI with Cyrus Vaziri	2017-2018
NIH/NIDCR Exploratory/Developmental Research Grant R21 DE025725-01A1 Title: "Illuminating the Role of Oral Stem Cells in the Development of Oral Squamous Cell Carcinomas" Role on grant: Multi-PI with Antonio Amelio, PI	2016-2018
Center for Gastrointestinal Biology & Disease 2016-2017 Pilot Feasibility Grant, supported by NIH/NIDDK P30 DK034987 Title: "Identification of Stem Cell Niches and Quiescence Signatures in the Upper Gastrointestinal Tract" Role on grant: PI	
Sidney Kimmel Foundation for Cancer Research 2015-2017 Kimmel Scholar Award SKF-15-065 Title: "Characterization of Oral Stem Cells and Their Role in Squamous Cell Carcinomas" Role on grant: PI	
IBM/UNC Provost Office Junior Faculty Award Title: "Characterization of oral epithelial stem cells and their role in orofacial clefting and oral cancers" Role on grant: PI	2015
American Cancer Society Postdoctoral fellowship PF-07-045-01-DDC Title: "Role of Asymmetric Cell Divisions in Epidermal Development and Homeostasis" Role on grant: PI (Elaine Fuchs, PI/Sponsor)	2007-2010

H) PROFESSIONAL SERVICE

INTERNATIONAL GRANT REVIEW PANELS

- Invited External Reviewer, OIRM (Ontario Institute of Regenerative Medicine), 2018

- External Reviewer, ANR (French National Research Agency), CES11 Section, 2014, 2018

PROFESSIONAL SOCIETY MEMBERSHIPS

- American Society for Cell Biology (ASCB) since 2013
- International Society for Stem Cell Research (ISSCR) since 2011

EDITORIAL RESPONSIBILITIES

- *Ad hoc* reviewer for *Science*, *Nature Cell Biology*, *Nature Communications*, *Journal of Cell Biology*, *Proceedings of the National Academy of Sciences*, *Developmental Cell*, *Development*, *eLife*, *Current Biology*, *iScience*, *FASEB J*, *Developmental Biology*, *Journal of Investigative Dermatology*, *Stem Cell Reports*, *Journal of Dental Research*.

UNIVERSITY COMMITTEES

EXECUTIVE/STEERING COMMITTEES

- Curriculum in Cell Biology & Physiology Executive Committee, 2017-present
- Curriculum in Pathobiology & Translational Science Executive Committee, 2016-present
- Curriculum in Genetics and Molecular Biology Executive/Steering Committee, 2015-present
- BRIC Small Animal Imaging Advisory Committee, 2014-present

GRADUATE SCHOOL BIOLOGICAL AND BIOMEDICAL SCIENCE PROGRAM (BBSP)

- Chair, Human Disease and Translational Science (TMED) Admission Committee, 2019-present
- Interview Weekend Coordinator, BBSP Admissions (Cancer, Genetics, Cell Biology), 2017-2018
- BBSP Neurobiology, Cancer, Genetics, Cell Biology (NCGC) Graduate Application Review Committee (NB), 2016-2019
- BBSP NCGC Graduate Admissions Committee (NB), 2016-2019

DEPARTMENT OF PATHOLOGY AND LABORATORY MEDICINE

- Department of Pathology & Laboratory Medicine Tenure-Track Faculty Search Committee, 2020
- Department of Pathology & Laboratory Medicine Research-Track Faculty Search Committee, 2019
- Organizing Committee, Pathology & Laboratory Medicine Faculty Retreat, 2017
- Faculty Advisor, Marc J Mass Memorial Lecture Committee, Curriculum in Pathobiology and Translational Science and Department of Pathology & Laboratory Medicine, 2015-present
- Chair, Molecular and Cellular Pathology Preliminary Exam Committee, 2016 (member 2013-2016)
- Department of Pathology & Laboratory Medicine Research-Track Faculty Search Committee (Microscopy Services Laboratory Director), 2015

INTERNAL GRANT REVIEW COMMITTEES

- Internal Reviewer, LCCC Developmental Grant Committee (2018-present)
- Internal Reviewer, CGIBD Pilot/Feasibility Grant Committee (2018)
- Internal Reviewer, limited submission pre-proposal, NIH Shared Instrumentation for Animal Research (SIFAR) Grant Program (2018)
- Internal Reviewer, limited submission pre-proposal, Brain Research Foundation Seed Grant (2016)

OTHER COMMITTEES

- Chair, Genetics T32 Selection Committee (2019)
- Chair, Magnuson Award Selection Committee (2018, 2019)
- Faculty Mentoring and Professional Development Committee for Pablo Ariel, Director, Microscopy Services Laboratory and Assistant Professor, Pathology & Laboratory Medicine (2018-present)