

Katie M Litts

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Education

- 2010 – Present Ph.D. Vision Science, University of Alabama at Birmingham, Birmingham, AL
- 2006 – 2010 B.S. Biomedical Engineering (Concentration: Medical Optics; Minors: Biology, Mathematics, American Sign Language), University of Rochester, Rochester, NY

Research Interests

Ophthalmology, High-resolution retinal imaging, Histopathology, Age-related macular degeneration, Retinal diseases, Photoreceptor degeneration, Mitochondria.

Research Experience

- Aug 2010 – Present Graduate Student Trainee (PhD Candidacy, Fall 2014), Department of Vision Sciences, **University of Alabama at Birmingham**
Dissertation: Histopathology and Image Validation of Outer Retinal Tubulations in Age-Related Macular Degeneration in lab of Christine A. Curcio, PhD
Imaging Techniques: Transmission Electron Microscopy, Histology, Spectral Domain Optical Coherence Tomography (Heidelberg Spectralis), Adaptive Optics Scanning Laser Ophthalmoscopy
- May 2009 – May 2010 Undergraduate Research Assistant, Ed Brown and Ian Dickerson Labs, **University of Rochester Medical Center**. Topic: CGRP receptor
- Sept 2008 – May 2009 Undergraduate Research Assistant, Andrew Berger Lab, Institute of Optics, **University of Rochester**. Topic: Track cerebral hemodynamics for functional monitoring using near infrared absorption spectroscopy. Acknowledged in Saager et al. Two-detector Corrected Near Infrared Spectroscopy (C-NIRS) detects hemodynamic activation responses more robustly than single-detector NIRS. *NeuroImage* 55 (2011), 1679-1685.
- Jun 2008 – Jul 2008 REU Research Assistant, Jeffrey Morgan Lab, Center for Biomedical Engineering, and Department of Molecular Pharmacology, Physiology and Biotechnology, **Brown University**, Providence, RI
Programs: Leadership Alliance Summer Research – Early Identification Program, Brown Materials Research Science & Engineering Center REU
Topic: The Effect of Blebbistatin on the Self-Assembly of Torodial Microtissues
- May 2007 – Aug 2007 Undergraduate Research Assistant, Goldman Lab, Neurology, **University of Rochester Medical Center**. Topic: Human oligodendrocyte progenitor molecular biology

Publications

1. Schaal KB, Freund KB, Litts KM, Zhang Y, Messinger JD, Curcio CA. Outer retinal tubulation in age-related macular degeneration: optical coherence tomographic findings correlate with histology. *Retina*. 2015;35(7):1339-1350. PMID 25635579.
2. Litts KM, Messinger JD, Dellatorre K, Yannuzzi LA, Freund KB, Curcio CA. Clinicopathological Correlation of Outer Retinal Tubulation in Age-related Macular Degeneration. *JAMA Ophthalmology*. 2015;133(5):609-612. PMID 25742505
3. Litts KM, Messinger JD, Zhang Y, Freund KB, Curcio CA. Inner segment remodeling and mitochondrial translocation in degenerating cones of age-related macular degeneration, including outer retinal tubulation. *Investigative Ophthalmology & Visual Science*. 2015;56(4):2243-2253. PMID 25758815
4. Ross DH, Clark ME, Godara P, Huisingh C, McGwin G, Jr, Litts KM, Spaide RF, Sloan KR, Curcio CA. RefMoB, a reflectivity feature model-based automated method for measuring four outer retinal hyper-reflective bands in optical coherence tomography. *Investigative Ophthalmology & Visual Science*. 2015;56(8):4166-4176. PMID 26132776
5. Litts KM, Curcio CA, Schaal KB, Freund KB. eLetter: Outer retinal tubulation is a process of neurodegeneration. *British Journal of Ophthalmology*. 13 November 2015.
6. Litts KM, Ach T, Hammack KM, Sloan KR, Zhang Y, Freund KB, Curcio CA. Quantifying cones in outer retinal tubulation in age-related macular degeneration from spectral domain optical coherence tomography. Under Review.
7. Litts KM, Wang X, Clark ME, Owsley C, Freund KB, Curcio CA, Zhang Y. Exploring photoreceptor reflectivity via multimodal imaging of outer retinal tubulation in advanced age-related macular degeneration. In Preparation.
8. Glover JP, Litts KM, Messinger JD, Curcio CA. Histopathology of Friedman lipid globules in human choroid. In Preparation.
9. Litts KM, Zhang Y, Yao XC, Freund KB, Curcio CA. Optical coherence tomography and histology of age-related macular degeneration supports mitochondria as reflectivity sources. In Preparation.

Abstracts

1. Litts KM, Wang X, Clark ME, Curcio CA, Zhang Y. Reflectivity of cone photoreceptors in outer retinal tubulation (ORT) in age-related macular degeneration (AMD). ARVO Meeting Abstract 2016, Accepted as Poster.
2. Litts KM, Ach T, Hammack KM, Sloan KR, Zhang Y, Freund KB, Curcio CA. Quantifying cones in outer retinal tubulation (ORT) in age-related macular degeneration (AMD) from spectral domain optical coherence tomography (SD-OCT). ARVO Meeting Abstract 2015, 2015, 56(7):2780.
3. Schaal KB, Freund KB, Litts KM, Messinger JD, Curcio CA. Outer Retinal Tubulation in Advanced Age-Related Macular Degeneration: Optical Coherence Tomographic Findings Correlate with Histology. Retina Society Abstract 2014.
4. Litts KM, Messinger JD, Zhang Y, Curcio CA. Histologic Correlates of Reflectivity of Outer Retinal Tubulations (ORT) in Age-Related Macular Degeneration (AMD). ARVO Meeting Abstracts 2014, 55:4016
5. Curcio CA, Ross DH, Litts K, Messinger JD, Sloan KR, Spaide RF. "Computational And Anatomical Studies Supporting Renaming SD-OCT'S Inner Segment/ Outer Segment Junction The Is Ellipsoid." ARVO/ISIE Imaging Conference 2012.
6. Litts KM, Messinger JD, Sloan KR, Spaide RF, Curcio CA. Sources Of Reflectivity In Optical Coherence Tomography (OCT) Of Retina: Candidates Near The Inner-Outer Segment (IS/OS) Junction. ARVO Meeting Abstracts 2011, 52(6):1322.

Reviewer

Investigative Ophthalmology & Visual Science – Exceptionally Good Review (3 times)

Awards and Honors

May 2015	UAB Graduate Student Government Travel Grant
2015	The Honor Society of Phi Kappa Phi member
May 2014	AOA-AAO ARVO Student Travel Fellowship Award sponsored by The Vision Care Institute, Johnson & Johnson
May 2014	UAB Graduate Student Association Travel Grant
Aug 2013	UAB Faculty of Optometry and Vision Sciences Scholarship
2013	Delta Epsilon Iota Academic Honor Society
Sept 2012	Sylvia D. Worrell Vision Science Scholarship
April 2012	NEI 2 nd Symposium on Stem Cells Travel Award
July 2011	ASCO Future Faculty Program Participant
May 2011	NEI Travel Grant, 2011 ARVO Annual Meeting
2011	Golden Key International Honour Society Member
May 2010	Order of the Engineer
2007 – 2010	David T. Kearns Scholar for Leadership and Diversity in Science and Engineering
2006 – 2010	Dean's Scholarship, University of Rochester

Graduate Teaching Experience

May 2011	Graduate Teaching Assistant, Introduction to Neurobiology, University of Alabama at Birmingham, Dauphin Island Sea Lab
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Teaching Certificate

Center for the Integration of Research, Teaching, and Learning (CIRTL) Associate Teaching Certificate (<https://katiemlittsportfolio.wordpress.com>)

Professional Memberships

2015 – Present	American Academy of Optometry (Student Member)
2012 – Present	American Association for the Advancement of Science (AAAS/Science Program for Excellence in Science)
2010 – Present	Association for Research in Vision and Ophthalmology (Member-in-Training)
2006 – Present	Society of Women Engineers

Presentations and Conferences

November 13, 2015	“Histopathology and Image Validation of Outer Retinal Tubulations in Age-Related Macular Degeneration” Visiting talk to Advanced Ocular Imaging Program (AOIP) at Medical College of Wisconsin. Milwaukee, WI.
May 5, 2015	“Quantifying cones in outer retinal tubulation (ORT) in age-related macular degeneration (AMD) from spectral domain optical coherence tomography (SD-OCT).” Poster at ARVO Annual Meeting, Denver, CO.

April 10, 2015	“How does outer retinal tubulation in age-related macular degeneration help us understand photoreceptor reflectivity?: Sub-cellular sources of OCT reflectivity.” Visiting talk to Section on Epithelial and Retinal Physiology and Disease. National Institutes of Health/ National Eye Institute. Bethesda, MD.
July 25-27, 2014	The Leadership Alliance National Symposium, Stamford, CT. Graduate student moderator for poster and oral presentation sessions.
May 7, 2014	“Histologic Correlates of Reflectivity of Outer Retinal Tubulations (ORT) in Age-Related Macular Degeneration (AMD)” Paper presentation at ARVO Annual Meeting, Orlando, FL.
March 5, 2014	“Sources of Reflectivity of Outer Retinal Tubulations (ORT) in Age-Related Macular Degeneration (AMD)” Talk at UAB Graduate Student Research Days.
July 27-29, 2012	The Leadership Alliance National Symposium, Hartford, CT. Graduate student moderator for poster and oral presentation sessions.
May 2, 2011	"Sources of reflectivity in optical coherence tomography of retina: candidates near the inner-outer segment junction" Poster at ARVO Annual Meeting, Ft. Lauderdale, FL.
July 22, 2008	“The Effect of Blebbistatin on the Self-Assembly of Torodial Microtissues,” Poster at Brown Materials Research Science & Engineering Center REU, Brown University, Providence, RI
July 25-27, 2008	“The Effect of Blebbistatin on the Self-Assembly of Torodial Microtissues,” Talk at The Leadership Alliance National Symposium, Hartford, CT.

Graduate Leadership Positions

Mar 2012 – Present	Vision Science Senator, Graduate Student Government (formerly Graduate Student Association), University of Alabama at Birmingham
May 2015 – Present	Constitution Committee member, Graduate Student Government, University of Alabama at Birmingham
Mar 2012 – May 2015	Budget Committee member (Elected position 2014-2015), Graduate Student Government (formerly Graduate Student Association), University of Alabama at Birmingham
2012 – 2014	Student Member, School of Optometry Equity and Diversity Committee, University of Alabama at Birmingham
2012 – 2013	Student Member, Vision Science Graduate Program Admissions and Advisory Committee, University of Alabama at Birmingham

Volunteer Positions

Sept 2013 – Present	Real Reader Program, Hajim School of Engineering, University of Rochester
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Nov 2011 – Present Alumni Interviewer, Office of Admissions, University of Rochester

April 2012 Poster Judge, UAB Undergraduate Research Expo

Relevant Graduate Coursework

Mitochondria in Health and Disease, Electronics for Biologists, Developmental Neuroscience, Optics and Imaging, Ocular Anatomy: Physiology and Biochemistry, Retina and Subcortical Systems, Central Visual Mechanisms, Neurobiology, Biostatistics, Principles of Scientific Integrity, Developing Your Professional Image, Teaching at the College Level and Beyond, Developing a Teaching Portfolio, CIRTl Teaching and Learning Seminar.

LinkedIn Profile

www.linkedin.com/pub/katie-litts/21/537/482/en