

Kyle M. Brawner, Ph.D.

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Education

University of Alabama at Birmingham, Birmingham, AL
Doctor of Philosophy, Microbiology
Dissertation: “*Immunobiology of the Mucosal Response to Helicobacter pylori in Children*”
August 2012-April 2017

Lipscomb University, Nashville, TN
Bachelor of Science, Molecular Biology
Summa cum Laude
August 2008-May 2012

Professional Experience

August 2020-present

Lipscomb University, Nashville, TN
Assistant Professor of Biology, Department of Biology

- Undergraduate courses taught to date: Introductory Microbiology, Molecular Basis of Human Disease; Graduate courses taught to date: Introduction to Research and Experimental Design, Biomolecular Laboratory I, Applied Laboratory Methods, Immunology, Special Topics: The Microbiota
- Mentoring undergraduate and graduate students in individual research projects involving potential biomarkers for necrotizing enterocolitis.

January 2019-December 2019

University of Alabama at Birmingham, Birmingham, AL
Assistant Course Director, Undergraduate Immunology Program

- Team taught MIC 250 (Seminars in Immunology) and MIC 275 (Introduction to the Immune System) in partnership with a senior faculty member.
- Contributed to the design of course assignments
- Assisted in assessing student performance
- 28 total students

May 2017-June 2020

University of Alabama at Birmingham, Birmingham, AL
Postdoctoral Fellow, Department of Surgery
Mentor: Colin Martin, M.D.

- Evaluated how maternal psychological stress during pregnancy impacts gut immunity in offspring

- Investigated the relationship between aryl hydrocarbon receptor signaling and intestinal microbiota

August 2017-May 2018

Jefferson State Community College, Birmingham, AL
Adjunct Instructor of Biology, Department of Biology

- Taught BIO 101 (Introduction to Biology I for non-majors, lecture and lab).
- 32 total students

August 2012-April 2017

University of Alabama at Birmingham, Birmingham, AL
Graduate Research Assistant, Department of Medicine
Mentor: Philip Smith, M.D.

- Analyzed the gastric microbiota of children and adults infected or not infected with *H. pylori*.
- Evaluated how soluble mediators from pediatric and adult gastric stromal cells imprint dendritic cell responses to *H. pylori* and subsequent dendritic cell-T cell interactions.

Guest Lectures

November 11, 2016

Lipscomb University, Nashville, TN

- Immunology, undergraduate level
- 30 students
- Topic: T cell activation

Awards and Honors

- Christian Scholars Foundation Research Grant Recipient (\$25,000), 2021
- Associate Certificate in Undergraduate Teaching, Center for the Integration of Research, Teaching, and Learning, University of Alabama at Birmingham, April 2017
- National Institutes of Health T32 pre-doctoral training grant, October 2013-November 2015
- Lipscomb University Outstanding Biology Graduate, May 2012
- Alpha Chi National College Honor Society, Lipscomb University

Service to the Field

Ad hoc reviewer for the following journals

- Clinical and Translational Medicine
- Food and Function

University Service

- Member, Lipscomb University Health Professions Advisory Committee, January 2021-present
- Judge, Lipscomb University Student Scholars Symposium, April 2021

- Judge, UAB Research Expo, UAB Office of Service Learning and Undergraduate Research, July 2016, July 2017, April 2018, July 2018, April 2019
- UAB Summer in Biomedical Sciences, Summer 2016, Summer 2017, Summer 2018
 - Assessed undergraduate students' chalk talks and final poster presentations of their summer projects.
- Graduate Biomedical Student Outreach Representative, October 2014-July 2016.
- Judge, Central Alabama Regional Science and Engineering Fair, UAB Center for Community Outreach, March 5, 2016.

Mentored Undergraduate Student Projects

***Ongoing**

- Spencer Baird*, Kaylee Wu*, and Jessica Farmer*, “Exploring the effect of candidate NEC biomarkers on endoplasmic reticulum stress in intestinal epithelial cells.”
- Juhi Shah, “The Effects of Gestational Psychological Stress on Neonatal Mouse Intestinal Development.”
 - Poster presentation won 3rd place in category at Summer 2017 UAB Expo.
- Summer Rhynes, “Understanding the Influence of Microbial Stimulation on CCL28 Expression.”
- Jasmin Ayivor and Riddhi Patel, “The Effects of Exosomes and Oligosaccharides from Human Breast Milk on Epithelial Cell Responses to Microbial and Reactive Oxygen Stimuli.”
- Jaylen Sharpe, “Understanding the Effects of Amniotic Fluid-derived Exosomes on Epithelial Cell Viability and Function.”

Mentored Medical Student Projects

- Bethany Kennedy, “The Effect of Stress Hormone Signaling on Intestinal Epithelial Cell Antibody Transport.”
 - Poster presentation won 2nd place in category at 2019 UAB School of Medicine Medical Student Research Day

Notable Oral Presentations

- *“Prenatal stress alters offspring microbiota-IgA interactions and exacerbates necrotizing enterocolitis-like injury.”* Academic Surgical Congress. Orlando, FL. February 6, 2020.
- *“Aryl hydrocarbon receptor ligands shape the composition and function of intestinal microbiota.”* Academic Surgical Congress. Houston, TX. February 6, 2019.
- *“Gastric Stromal Cells Regulate the Immune Response to Helicobacter pylori in an Age-dependent Manner.”* University of Montevallo Senior Capstone Course. Montevallo, AL. April 24, 2017.
- *“The Effect of Age on the Gastric Stromal Cell-Dendritic Cell-T Cell Axis during Helicobacter pylori Infection.”* Lipscomb University Department of Biology Seminar Series. Nashville, TN. January 27, 2017

- “*Bacterial and Host Determinants of Gastric Cancer*”. Lipscomb University Department of Biology Seminar Series. Nashville, TN. February 28, 2014.

Notable Poster Presentations

*Undergraduate Presenter

- Riddhi Patel*, **Kyle M. Brawner**, Colin A. Martin. “*Corticosterone and Lipopolysaccharide Synergize to Promote Cell Death in Human Epithelial Stem Cells.*” National Conferences on Undergraduate Research. Kennesaw, GA. April 10-13, 2019.
 - Jasmin Ayivor*, Brian Sims, **Kyle M. Brawner**, Colin A. Martin. “*Synergistic Effects of Immunologic Breast Milk Components on Cell Viability and Protection.*” Annual Biomedical Research Conference for Minority Students. Indianapolis, IN. November 14-17, 2018.
 - Jasmin Ayivor*, Brian Sims, **Kyle M. Brawner**, Colin A. Martin. “*Synergistic Effects of Immunologic Breast Milk Components on Cell Viability and Protection.*” Science and Technology Open House. Montgomery, AL. September 7-8, 2018.
 - **Kyle M. Brawner**, Ming Y. Jian, Judy R. Creighton, Lesley E. Smythies, Phillip D. Smith, Colin A. Martin. “*Utilization of the Electric Cell-substrate Impedance Sensing System to Characterize the Development of Primary Epithelial Cell Monolayers Derived from Stem Cell Spheroids.*” Mucosal Immunology Course and Symposium, Society for Mucosal Immunology. Oxford, United Kingdom. July 17-20, 2018.
 - **Kyle M. Brawner**, Venkata Yeramilli, Leonard Duck, William Van Der Pol, Lesley E. Smythies, Casey D. Morrow, Charles O. Elson, Colin A. Martin. “*Environmental Influence on Intestinal Microbial Development and Function.*” Digestive Disease Week. Washington, DC. June 2-5, 2018.
 - Juhi Shah*, Sara B. Deas, John H. Neilson, Changchun Ren, **Kyle M. Brawner**, Tamas Jilling, Colin A. Martin. “*The Effects of Gestational Psychological Stress on Neonatal Mouse Intestinal Development.*” Academic Surgical Congress. Jacksonville, FL. January 30-February 1, 2018.
 - Sara B. Deas, John H. Neilson, **Kyle M. Brawner**, Casey D. Morrow, Colin A. Martin. “*Psychosocial Stress and Dysbiosis Depress Intestinal Immunity in C57BL/6 Mice.*” Academic Surgical Congress. Jacksonville, FL. January 30-February 1, 2018.
 - John H. Neilson, **Kyle M. Brawner**, Sara B. Deas, Alex Chen, James A. Bibb, Colin A. Martin. “*Serotonin-Mediated Neuro-Intestinal Regulation of Immune Development.*” Academic Surgical Congress. Jacksonville, FL. January 30-February 1, 2018.
- Kyle M. Brawner**, Lesley E. Smythies, Phillip D. Smith. “*Gastric Stromal Cells Regulate the Immune Response to Helicobacter pylori in an Age-dependent Manner.*”

Mucosal Immunology Course and Symposium, Society for Mucosal Immunology. Toronto, Canada. July 27-30, 2016.

- **Kyle M. Brawner**, Ranjit Kumar, Casey D. Morrow, Carolina A. Serrano, Lesley E. Smythies, Phillip D. Smith. “*Gastric Microbiota in Helicobacter pylori Infection is Associated with Age- and Gender-specific Gastric Disease Sequelae.*” Mucosal Immunology Course and Symposium, Society for Mucosal Immunology. Toronto, Canada. July 27-30, 2016.
- **Kyle M. Brawner**, Lesley E. Smythies, Phillip D. Smith. “*Gastric Stromal Cells Regulate the Immune Response to Helicobacter pylori in an Age-dependent Manner.*” UAB Department of Medicine Trainee Research Symposium. Birmingham, AL. March 22, 2016.
- **Kyle M. Brawner**, Ranjit Kumar, Casey D. Morrow, Carolina A. Serrano, Lesley E. Smythies, Phillip D. Smith. “*Gastric Microbiota in Helicobacter pylori Infection is Associated with Age- and Gender-specific Gastric Disease Sequelae.*” UAB Department of Medicine Trainee Research Symposium. Birmingham, AL. March 4, 2015
- **Kyle M. Brawner**, Ranjit Kumar, Casey D. Morrow, Carolina A. Serrano, Lesley E. Smythies, Phillip D. Smith. “*Age- and Gender-associated Differences in the Gastric Microbiota in Helicobacter pylori Infection.*” American Society for Microbiology General Meeting. Boston, MA. May 17-20, 2014.
- **Kyle M. Brawner**, Ranjit Kumar, Casey D. Morrow, Carolina A. Serrano, Lesley E. Smythies, Phillip D. Smith. “*Age- and Gender-associated Differences in the Gastric Microbiota in Helicobacter pylori Infection.*” UAB Department of Medicine Trainee Research Symposium. Birmingham, AL. March 5, 2014.

Publications

*Student Author

1. Mohamad M. Moughnyeh*, **Kyle M. Brawner**, Bethany A. Kennedy*, Venkata A. Yeramilli, Neha Udayakumar, Jessica A. Graham*, Colin A. Martin. (2021) “Stress and the Gut-Brain Axis: Implications for Cancer, Inflammation, and Sepsis.” *Journal of Surgical Research* 266 (336-344).
2. **Kyle M. Brawner**, Venkata A. Yeramilli, Bethany A. Kennedy*, Riddhi K. Patel*, Colin A. Martin. (2020) “Prenatal stress increases IgA coating of offspring microbiota and exacerbates necrotizing enterocolitis-like injury in a sex-dependent manner.” *Brain, Behavior, and Immunity* 89 (291-299).
3. Venkata A. Yeramilli, **Kyle M. Brawner**, David K. Crossman, Scott R. Barnum, Colin A. Martin. (2020) “RNASeq analysis reveals upregulation of complement C3 in the offspring gut following prenatal stress in mice.” *Immunobiology* 225(4).

4. **Kyle M. Brawner**, Venkata A. Yeramilli, Lennard W. Duck, William Van Der Pol, Lesley E. Smythies, Casey D. Morrow, Charles O. Elson, Colin A. Martin. (2019) “Depletion of dietary aryl hydrocarbon receptor ligands alters microbiota composition and function.” *Scientific Reports* 9, 14724.
5. Juhi Shah*, Sara Beth Deas*, Jon Neilson*, Changchun Ren, Tamas Jilling, **Kyle M. Brawner**, Colin A. Martin. (2018) “The Effects of Gestational Psychological Stress on Neonatal Mouse Intestinal Development.” *Journal of Surgical Research* 235, 621-628.
6. Colin A. Martin, Mikita Patel, Sparkle Williams, Hamish Arora, **Kyle M. Brawner**, Brian Sims. (2018) “Human breast milk-derived exosomes attenuate cell death in intestinal epithelial cells.” *Innate Immunity* 24(5): 278-284.
7. **Kyle M. Brawner**, Ranjit Kumar, Carolina A. Serrano, Travis Ptacek, Elliot Lefkowitz, Casey D. Morrow, Degui Zhi, Kondal R. Kyanam-Kabir-Baig, Lesley E. Smythies, Phillip D. Smith. (2017) “*Helicobacter pylori* infection is associated with an altered gastric microbiota in children.” *Mucosal Immunology* 10, 1169-1177.
8. **Kyle M. Brawner**, Casey D. Morrow, Phillip D. Smith. (2014) “Gastric microbiome and gastric cancer.” *The Cancer Journal* 20(3): 211-216.

Professional Memberships

Emerging Scholars Network (2021-present)

Society for Mucosal Immunology (2015-2019)

American Society for Microbiology (2013-2014)

American Association for the Advancement of Science (2012-2015)