

COREY G. DUKE

WWW.COREYGDUKE.COM

EDUCATION

- University of Alabama at Birmingham 2014-Current
- NIH Medical Scientist Training Program (M.D./Ph.D. Student)
 - Graduate Biomedical Sciences, Neuroscience Theme
 - GPA 4.0
- Cold Spring Harbor Laboratory 2017
- Chromatin, Epigenetics, and Gene Expression Course
 - Helmsley Charitable Trust Scholar
- University of Montevallo 2009-2013
- Bachelor of Science in Psychology
 - Minors in Biology, Chemistry, and Philosophy
 - Superior Academic Achievement in the College of Arts and Sciences (4.0 GPA)
 - Summa cum Laude, President's List 2009-2013
- Auburn University 2007-2009

GRANTS AND FELLOWSHIPS

- NIH T32 Neurobiology of Cognition and Cognitive Disorders 2017-2018
- NIH R25 NINDS Roadmap Scholars Program 2017-2018
- NIH T35 MSSRP Training Fellowship 2015
- NSF Research Experiences for Undergraduates 2012
- Ronald E. McNair Postbaccalaureate Achievement Program 2011

RESEARCH EXPERIENCE

- National Institute of Health Medical Scientist Training (M.D/PhD.) Program 2016-Current
University of Alabama at Birmingham
McKnight Brain Institute; Laboratory of Jeremy Day, Ph.D.
- Currently working to characterize and manipulate the epigenetic mechanisms guiding gene expression in neurons. This work will extend into the functioning nervous system to examine, control, and better understand the dynamic nature of the epigenetic marks required for and inherent to memory formation.
- National Institute of Health Medical Student Summer Research Program 2015
University of Alabama at Birmingham
McKnight Brain Institute; Laboratory of Jeremy Day, Ph.D.
- Over 10 work intensive weeks, I helped lead a project examining the epigenome and transcriptome wide effects occurring in the hippocampus following memory formation. In addition to providing the first genome-wide maps of these alterations, our results shed new light on the dynamic nature of DNA methylation and demethylation in the adult nervous system. This work received multiple awards and is now published in *Learning and Memory*.
- Research Assistant 2013-2014
University of Alabama at Birmingham
Behavioral Neuroscience and Electrophysiology; Laboratory of Franklin Amthor, Ph.D.

- Assisted with multiple projects focused on directionally selective ganglion cells of the rabbit and mouse retina.
 - Responsibilities included writing programs in MatLab for data interpretation, creating and writing stimulus program scripts, and assisting with retina electrophysiology recordings.

- Primary project focused on the development of new technologies and techniques for recording neural activity using infrared and heat sensing devices.

Cell, Developmental, and Integrative Biology; Laboratory of Rosa Serra, Ph.D.

- Helped lead a project involving chondrocytic cilium orientation in the growth plate. Primary responsibilities included programming ImageJ and MatLab to calculate the 3D organization of cells from microscope images, and assisting with data analysis and interpretation. This work led to a publication in *Molecular Biology of the Cell*.

National Science Foundation Research Experience for Undergraduates 2012

University of South Alabama; Laboratory of Sinéad M. Ní Chadhain, Ph.D.

Isolation and Screening of Soil Bacteria for Polycyclopropanated Fatty Acid Production Genes

- Completed a multidisciplinary research project on a potential biofuel working directly with a microbiologist, chemist, and chemical engineer over 10 work intensive weeks.
- Utilized genetic cloning, cell culturing, PCR, DNA extraction, electrophoresis, sequencing, cryopreservation, differential centrifugation, restriction enzyme digest, media preparation, and a variety of other techniques.

Ronald E. McNair Postbaccalaureate Achievement Program 2011

University of Montevallo; Under Mentorship of Kristen Gilbert, Ph.D.

Empathy, the Highly Sensitive Person, and Environmental Moral Reasoning

- As lead investigator under two mentors, I devoted a year to intensive training in research design and methodology, designed and conducted my own study, and presented my findings at several conferences in addition to the program's report.

Laboratory Assistant 2011-2013

- Assisted with laboratory research, set up and preparatory work, and management in the chemistry and biology departments at the University of Montevallo. I also led several laboratories for undergraduate chemistry and biology courses.
- Particular labs include organic, general and introductory chemistry, and general and introductory biology.
- Techniques used include NMR, chromatography, organic synthesis, titration, reflux, UV-vis, mass spectroscopy, buffer and solution preparation, distillation, and various others.

Teaching Assistant 2011-2013

- Held office hours with students for tutoring in the biology and chemistry departments.
- Particular courses include organic, analytical, and general chemistry, genetics, physiology, and general biology.

Information Technology Consultant 2013

Audiology of Tulsa, PLLC

- Instituted and maintained a variety of server and database technologies, as well as repaired and managed the company website and phone system.

AWARDS AND HONORS

Helmshley Charitable Trust Scholarship to attend CSHL Course (\$2,000)

Gold Humanism Honor Society Inductee

W. Hudson Turner Endowment Scholarship (\$120,000)
 SACNAS Annual Meeting Travel Award (Full)
 2016 MSRD Poster Presentation Award – 2nd Place
 Senior Elite in Psychology 2011-2012 at UM
 Superior Academic Achievement in the College of Arts and Sciences (4.0 GPA)
 National Science Foundation Research Experiences for Undergraduates
 Ronald E. McNair Postbaccalaureate Achievement Program
 National Science Foundation BIO REU Travel Scholarship (\$1000)
 UM Undergraduate Research Travel Award (\$500)
 UM Health Science Professional Award
 B. F. Skinner Successive Approximation Award
 Golden Key International Honors Society
 J.L. Bedsole Leadership Scholars Program (\$24,000)
 Hawkins Educational Foundation Scholars Program (\$16,000)
 Minnie S Mitchell Scholarship (\$1,600)
 Class of 1952 Memorial Scholarship (\$1,000)
 Alpha Delta Kappa Baldwin County Educators Scholarship (\$500)
 Psi Chi International Honor Society in Psychology
 Sigma Tau Delta National English Honors Society
 President's List 2009-2013
 Dean's List 2007-2008

LEADERSHIP AND EXTRA CURRICULAR

UAB SOM Class of 2018 President	2014-2016
Magic City Medcast (Medical Podcast) <i>Founder, Executive Producer</i>	2015-2018
American Physician Scientists Association <i>National Technology Committee Member</i>	2015-2017
American Physician Scientists Association <i>Research Director</i>	2015-2018
UAB SOM Academic Engagement Committee <i>Director of Innovation</i>	2016-2018
UAB SOM Medical Alumni Association Board <i>Student Representative</i>	2014-2016
UAB Sustainability Investment Fund <i>Professional School Representative</i>	2014-2016
Medical Student Services Academic Success <i>Tutor</i>	2015-2018
Student Interest Group in Neurology <i>Coordinator</i>	2015-2016
Introduction to Clinical Medicine <i>Course Representative</i>	2014-2015
UASOM Transcript Service <i>Committee Member, Webmaster</i>	2014-2015
Pre-Health Professionals Society <i>Founder, President</i>	2012-2013
Psychology Club <i>Co-founder, President</i>	2010-2013
Ballroom Dance Club <i>Co-founder, Vice President</i>	2011-2013
Biology Club <i>Vice President</i>	2011-2012
Performance Musician <i>Bluegrass Mandolin and Guitar</i>	2003-2018

COMMUNITY INVOLVEMENT AND SERVICE

Letters to a Pre-Scientist	2017-2018
Equal Access Birmingham	2014-2017
Civitan International	2013-2015
Habitat for Humanity	2009-2013
Homeless Coalition of the Gulf Coast Intern	2010
Angel Food Industries	2008-2009
Costa Rican Missions English Educator	2007-2008

PROFESSIONAL SOCIETIES

Society for Neuroscience	2016-2018
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American Medical Association	2014-2018
American Neurological Association	2015-2018
Medical Association of the State of Alabama	2014-2018
Jefferson County Medical Society	2014-2018

PEER-REVIEWED MANUSCRIPTS

Duke, C.G., Kennedy, A.J., Gavin, C.F., Day, J.J., Sweatt, J.D. Experience-dependent epigenomic reorganization in the hippocampus. *Learning and Memory*. 2017 Jun 15;24(7):278-288. doi: [10.1101/lm.045112.117](https://doi.org/10.1101/lm.045112.117). *This work was featured on the journal cover.*

Killion, C.H., Mitchell, E.H., **Duke, C.G.**, Serra, R. Mechanical loading regulates organization of the actin cytoskeleton and column formation in the postnatal growth plate. *Molecular Biology of the Cell*. 2017 Jul 7;28(14):1862-1870. doi: [10.1091/mbc.E17-02-0084](https://doi.org/10.1091/mbc.E17-02-0084).

MANUSCRIPTS IN PREPARATION

Savell, K.E., Bach, S.V., Revanna, J.S., Goska, N.A., Zipperly, M.E., Tuscher, J., **Duke, C.G.**, Sultan, F.A., Day, J.J. A neuron-optimized CRISPR/dCas9 toolbox for robust and specific gene regulation across neuronal subpopulations. *In prep.*

POSTER PRESENTATIONS (* CO-FIRST AUTHOR)

Duke, C.G., Kennedy, A.J., Gavin, C.F., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *NEURAL Conference*. Birmingham, AL 2017.

Duke, C.G., Kennedy, A.J., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *Society for Neuroscience Annual Meeting*. San Diego, CA 2016.

Duke, C.G., Kennedy, A.J., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *Molecular and Cellular Cognition Society Meeting*. San Diego, CA 2016.

Duke, C.G., Kennedy, A.J., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *Evelyn F. McKnight Brain Research Foundation Poster Reception*. San Diego, CA 2016.

Duke, C.G., Kennedy, A.J., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *South Eastern Medical Scientist Symposium*. Birmingham, AL 2016. **Winner: Best Poster, 2nd Place**

Duke, C.G., Kennedy, A.J., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *Medical Student Research Day*. Birmingham, AL 2016.

Jones, C.*, Ray, C.*, **Duke, C.G.***, Ma, E.*, Hammock, J.*. A Novel Early Integrative Experience Based Curriculum in Undergraduate Medical Education. *Research in Medical Education Symposium*. Birmingham, AL 2016

Duke, C.G., Kennedy, A.J., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *Molecular and Cellular Cognition Society Meeting*. Chicago, IL 2015.

Duke, C.G., Kennedy, A.J., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *Evelyn F. McKnight Brain Research Foundation Poster Reception*. Chicago, IL 2015.

Duke, C.G., Kennedy, A.J., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *South Eastern Medical Scientist Symposium*. Nashville, TN 2015.

Duke, C.G., Kennedy, A.J., Day, J.J., Sweatt, J.D. Experience-Dependent Epigenomic Reorganization. *Medical Student Research Day*. Birmingham, AL 2015.

ORAL PRESENTATIONS

- Duke, C.G.**, Savell, K.E., Sultan, F.A., Day, J.J. Light-Activated Epigenetic Control of Gene Expression. *South Eastern Medical Scientist Symposium*. Atlanta, GA 2017.
- Duke, C.G.**, Kennedy, A.J., Day, J.D., Sweatt, J.D. Experience Dependent Epigenomic Reorganization. *Society for Advancement of Chicanos and Native Americans in Science (SACNAS) Annual Meeting*. Long Beach, CA 2016.
- Duke, C.G.**, Ní Chadhain, S.M., West, K., Davis, J. The Hunt for Polycyclopropanated Fatty Acid Production Genes. *National Conference for Undergraduate Research*. La Crosse, WI 2013.
- Duke, C.G.**, Ní Chadhain, S.M., West, K., Davis, J. The Hunt for Polycyclopropanated Fatty Acid Production Genes. *COPLAC Southeast Regional Undergraduate Research Conference*. Wise, VA 2013.
- Duke, C.G.**, Ní Chadhain, S.M., West, K., Davis, J. The Hunt for Polycyclopropanated Fatty Acid Production Genes. *University of Montevallo Undergraduate Research Day*. Montevallo, AL 2013.
- Duke, C.G.**, Ní Chadhain, S.M., West, K., Davis, J. The Hunt for Polycyclopropanated Fatty Acid Production Genes. *USA National Science Foundation Research Symposium*. Mobile, AL 2012.
- Duke, C.G.**, Burling, J.W., Gilbert, K.D. Empathy, the Highly Sensitive Person, and Environmental Moral Reasoning. *University of Montevallo Undergraduate Research Day*. Montevallo, AL 2012.
- Duke, C.G.**, Burling, J.W., Gilbert, K.D. Empathy, the Highly Sensitive Person, and Environmental Moral Reasoning. *Southeastern Association of Educational Opportunity Program Personnel McNair Research Conference*. Atlanta, GA 2011
- Duke, C.G.**, Burling, J.W., Gilbert, K.D. Empathy, the Highly Sensitive Person, and Environmental Moral Reasoning. *McNair Scholars Program Summer Research Presentation Day*. Montevallo, AL 2011.

INVITED LECTURES/PANEL SESSIONS

- Duke, C.G.** Careers in the Health Professions. *Upward Bound Program guest panelist*. University of Montevallo. Montevallo, AL 2018.
- Duke, C.G.**, Zipperly, M.E. Why MD-PhD?. *Colloquium in Basic Cognitive and Clinical Neuroscience*. University of Alabama at Birmingham. Birmingham, AL 2017.
- Duke, C.G.** Introduction to Epigenetics. *Guest Lecturer for a Genetics course, a Biochemistry course, and a Biology Senior Seminar course*. University of Montevallo. Montevallo, AL 2017.
- Cavazos, J.E., **Duke, C.G.**, Haskins, C., Linares, A., Villa, G. MD-PhD: Is it right for me?. *SACNAS Annual Meeting Panelist*. Long Beach, CA 2016.
- Swecker, H., **Duke, C.G.**, Peabody, J. Mock Multiple Mini Interview Workshop. *South Eastern Medical Scientist Symposium Panelist*. Birmingham, AL 2016.

TEACHING EXPERIENCE

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| Peer Tutor | 2014-Current |
| <i>University of Alabama at Birmingham School of Medicine, Medical Student Services</i> | |
| Peer tutor in all preclinical courses within the medical school. | |
| Teaching Assistant | 2018 |
| <i>University of Alabama at Birmingham Department of Neurobiology</i> | |
| Mechanisms of Memory. Graduate level neuroscience course. | |
| Teaching Assistant and Tutor | 2011-2013 |
| <i>University of Montevallo Department of Biology, Chemistry, and Mathematics</i> | |
| Organic Chemistry, Analytical Chemistry, General Chemistry, Genetics, Physiology, Introductory Biology. Undergraduate level courses. | |

MENTORING EXPERIENCE

Nicholas Southern, UAB Undergraduate Student
Science and Technology Honors student in Day Laboratory

Adou Kouame, UAB Undergraduate Student
Honors student in Day Laboratory

Jasmin Revanna, UAB Undergraduate Student, Amgen Scholar
Honors student in Day and Amthor Laboratories

Oge Otiji, Georgia Gwinnett College Undergraduate Student
Preparation for Graduate and Medical Education (PARAdiGM) Program student

Hunter Dean, UAB Undergraduate Student
Honors student in Day Laboratory

Andres Vega, University of Central Arkansas Undergraduate Student
Preparation for Graduate and Medical Education (PARAdiGM) Program student

REFERENCES

Jeremy Day, Ph.D.
MSTP/MSSRP Mentor and Primary Investigator
Dept. of Neurobiology; Evelyn F. McKnight Brain Institute SHEL 911 1825 University Blvd.,
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