

Cellas Ari'ka Hayes, BA

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Education

The University of Mississippi, University, MS
Degree Type: *Doctor of Philosophy, Ph.D.*
School of Pharmacy Department of BioMolecular Sciences
Program: Pharmaceutical Sciences
Emphasis: Pharmacology
Start Date: May 2019, Expected End Date: November/December 2022

The University of Mississippi Medical Center, Jackson, MS
Degree Type: Certification in Epidemiology and Biostatistics
UMMC-Graduate Educational Training Center
Start Date: April 2020, End Date: April 1, 2022

The University of Mississippi, University, MS
Degree Type: Bachelor of Arts
School of Liberal Arts Department of Biology and Classics
Start Date: August 2015, End Date: May 11, 2019

Noteworthy Research and Professional Development Programs

Summer 2022

Marine Biological Laboratory Summer Program in Neuroscience, Excellence and Success (SPINES) Program

- *The course attracts 20 leading faculty from across the country to teach our 15-20 students in a 3-week intensive immersion experience dedicated to creating and sustaining an outstanding diverse workforce in neuroscience.*

June 2020-Present

Neuroscience Scholars Program (Associate Recipient)

- *The Neuroscience Scholars Program (NSP) is a two-year online training program open to underrepresented graduate students and postdoctoral researchers. Professional development and mentoring opportunities are offered throughout the two-year duration of the program.*

April 2020-April 2022

UM Southern Regional Education Board Program (UM SREB)

- The University of Mississippi gives 6 fellowships to students enrolled in doctoral programs. The award also requires scholars to attend the Institute on Teaching and Mentoring Conference annually.

Publications

1. **Insulin-like Growth Factor-1 and Ischemic Stroke Outcomes: Evidence from Clinical and Preclinical Interventions:** In this review, we discuss the significant functions of IGF-1 in neurons and glial cells and provide insight on the downstream cellular and molecular changes as support for IGF-1 levels being beneficial in stroke patients and *in vivo* studies.
 - a) **Hayes CA, Valcarcel-Ares MN, Ashpole NM (2020)** Insulin-like Growth Factor-1 and Ischemic Stroke Outcomes: Evidence from Clinical and Preclinical Interventions. *Journal of Cerebral Blood Flow and Metabolism* PMID: 33757314 DOI: [10.1177/0271678X211000894](https://doi.org/10.1177/0271678X211000894)
2. **Black Scientists Are Not the Door to Diversity:** In this editorial, I highlight the over-extendedness that black trainees and faculty face within the scientific community.
 - a) **Hayes CA, (2021)** Black Scientists Are Not the Door to Diversity. *ACS ChemNeuro* PMID: 34115483 DOI: <https://doi.org/10.1021/acchemneuro.1c00375>
3. **IGF-1 Differentially Modulates Glutamate-Induced Toxicity and Stress in Cells of the Neurogliovascular Unit:** This project focused on delineating the role that IGF-1 has on neuroprotection and responses of glial cells comprising the neurogliovascular unit.

Hayes, CA, Brandon G. Ashmore, Akshaya Vijayasankar, Jessica P. Marshall, Nicole M. Ashpole. (2021) *Frontiers in Aging Neuroscience* DOI: <https://doi.org/10.3389/fnagi.2021.751304>

Under Review/In-Preparation Manuscripts

1. **Adulthood Deficiency of the Insulin-like Growth Factor-1 Receptor in Hippocampal Neurons Impairs Cell Structure and Spatial Learning and Memory in Male Mice:** This project focused on understanding how neuronal IGF-1 in the hippocampus influenced learning and memory.
 - a) **Hayes, CA, Erik L. Hodges, Jessica P. Marshall, Sreemathi Logan, Julie A. Farley, Daniel B. Owens, William E. Sonntag, Nicole M. Ashpole. (2021)** *Submitted to Hormones and Behavior (2nd round of Revisions)* Preprint access: <https://www.biorxiv.org/content/10.1101/2021.08.08.455596v1>
2. **Astrocytic Insulin-like Growth Factor-1 Receptor Deficiency Alters Cognition and Behavioral in a Sex-Dependent Manner:** This project focused on understanding how astrocytic IGF-1 signaling alters learning, memory, anxiety, and behavioral despair.

- a) **Hayes, CA**, Disha Prabhu, Erik L. Hodges, Jessica P. Marshall, Sariya Khan, Brandon G. Ashmore, Nicole M. Ashpole. *Currently being reviewed by all authors to be submitted to Brain and Behaviour*
3. **High sensitivity C-Reactive Protein Association with Stroke Incidence: The Jackson Heart Study:** This project focused on determining if hs-CRP (inflammation) is associated with total stroke incidence in African Americans enrolled in the Jackson Heart Study
- a) **Hayes, CA**, Marino Bruce, Betina Bruce, Mandip Dhamoon, Elizabeth Heitman, Keith Norris, Jennifer Reneker, Roland Thorpe. *Currently under review at the JHS P&P Committee with intentions to submit to the Journal of American Heart Association*
4. **Insulin-like Growth Factor-1 and Cognition:** This literature focuses on the clinical, preclinical, cellular, and molecular aspects of IGF-1 and cognition.
- a) Hayes, CA, Destiny Wilson, Nicole Ashpole *Currently in preparation to be submitted July 22nd, 2022*
5. **Advanced Glycation End Products Role in Metabolic Aging and Cognition in Early Life:** This project focused on understanding the role of advanced glycation end productions with cognition and side effects of metabolic aging like increased weight gain and muscle function.
- a) Miguel De Leon, **Hayes, CA**, Brandon G. Ashmore, Nyah I. Morgan, James A. Stewart, Nicole Ashpole *Currently in preparation to be submitted June 31st, 2022*

Funded External Funding Applications

2019	Graduate School Counsel Research Grant from the University of Mississippi -competitive award given in the amount of \$1,000
2022	Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research F31 *1 st Black trainee to receive this award at UM *3 rd trainee in history to receive this award at UM (1985-1987-2022)

Honors, Awards, and Notable Features

2022-Present	Neuroscience Scholars Program Fellow -awarded by SfN, a two-year program that provides scientific and professional development opportunities for neuroscience trainees
2022	Admitted into Stanford Postdoctoral Recruitment Initiative in Sciences and Medicine (PRISM)
2021/2022	Recipient of Marine Biological Laboratory Summer Program in Neuroscience, Excellence and Success (SPINES) Program -The course attracts 20 leading faculty from across the country to teach our 15-20 students in a 3-week intensive immersion experience dedicated to creating and sustaining an outstanding diverse workforce in neuroscience.
2021	TPDA, Trainee Professional Development Award , awarded by SFN,

	Society for Neuroscience, to attend SfN2021 Conference.
2021	The US-Canada Regional Committee of IBRO (International Brain Research Organization) Fellowship
2021	University of Mississippi School of Pharmacy Department of Biomolecular Sciences Marvin Davis Pharmacology Award
2021	Rho Chi, The Academic Honor Society of Pharmacy
2021	Honorable Mention-The National Academy of Sciences Engineering and Medicine Ford Foundation Pre-Doctoral Fellowship (NASEMFord)
2020	Neuroscience Scholars Program Associate -awarded by SfN, a two-year program that provides scientific and professional development opportunities for neuroscience trainees from underrepresented and diverse backgrounds
2020	Graduate School Counsel Research Grant from the University of Mississippi -competitive award given in the amount of \$1,000
2020	Honorable Mention-National Science Foundation Graduate Research Fellowship Program (NSF-GRFP)
2019	TPDA, Trainee Professional Development Award , awarded by SfN, Society for Neuroscience, to attend SFN2019 Conference.
2019	UM Southern Regional Education Board Program (UM SREB): The University of Mississippi gives 6 fellowships to students enrolled in doctoral programs. Awards include full tuition waiver and supplemental stipend.
2019	Ole Miss Greek Man of the Year: Highest award given to a male member of the University of Mississippi Greek Council
2019	Ole Miss Who's Who Selection 2018/2019: 200 hundred students are selected to be the University of Mississippi's Who's Who Award.
2018	Student Travel Award via Annual BioMedical Research Conference for Minority Students (ABRCMS) 2018
2017	Distinguished Research Citation Award at University of Mississippi School of Pharmacy Spring 2017-Given to an undergraduate student who is nominated by faculty for research in School of Pharmacy
2017	A Milden Classics Scholarship Recipient -Scholarship amount of \$3500, given to a student who excels academically in the Classics Department
2017	Classics Foundation Scholarship- \$2500 Award in support from the McDonnell Foundation Scholarship
2016	Dr. Pepper SEC Study Abroad Scholarship Recipient -Scholarship amount of \$2000 awarded to a student who is studying abroad for at least 4 weeks
2016	Global Engagement Scholarship Recipient -Scholarship amount of \$1000 given to student study abroad for at least 4 weeks, essay-based scholarship
2015	The University of Mississippi Luckyday Scholarship Recipient -Scholarship amount of \$5000 given to undergraduate at the University of Mississippi
2015	Chancellor's Leadership Scholarship Recipient -Scholarship amount of

	\$1000 given to Freshman who exhibits exceptional leadership qualities in high school
2015	Bledsoe Scholarship Recipient -Scholarship amount of \$1500 given to first time undergraduate students who maintain a 3.0 GPA
2015	Academic Excellence Scholarship Recipient - Scholarship amount of \$1500 given to a student who scores 25 of ACT in high school.

Noteworthy Features & Science Communication Outreach Links

2022	Alumni Advice to UM Class of 2022 https://news.olemiss.edu/alumni-offer-advice-to-new-graduates/
2021	Sci Communication with Dr. Sherry Nouraini Podcast/Live Twitter
2021	Science Communication with Adam MA Simpson https://www.youtube.com/watch?v=pfT0XKrImp4
2021	Science Communication with Adam MA Simpson https://www.youtube.com/watch?v=4jQvKMOVnE8&t=1s
2019-	University of Mississippi Admissions Department Recruiting Video: https://vimeo.com/375464026
2019	<i>Mississippi Works</i> Magazine Feature: https://www.pageturnpro.com/Arkansas-Business-Group/92362-MSWorks_2019_20/sdefault.html#page/74
2019	Commencement Highlight: <i>Beating the Odds</i> Cellas Ari'ka Hayes https://news.olemiss.edu/beating-the-odds/
2017	Feature in <i>Mississippi Today</i> Newspaper: <i>Summer Student Spotlight: Into the wild for the cure to cancer</i> https://mississippitoday.org/2017/07/21/summer-student-spotlight-into-the-wild-for-the-cure-to-cancer/

Responsible Conduct of Research Certifications, Seminars, and Courses

2021	University of Mississippi School of Pharmacy Responsible Conduct of Research Summer Workshop	15 hours
2020	Research Ethics Course	13 hours
2018	Collaborative Institutional Training Initiative (CITI) Program	

Research Experience

August 2016-Present

Research Assistant

Department of Biomolecular Sciences Neuropharmacology Lab,
The University of Mississippi, University, MS

- Perform a variety of molecular laboratory techniques

- Prepare and assist with surgical procedures in rodents
- Assist in organizing the laboratory and rodent colony
- Administer behavior analysis assessments for rodent colony
- Keep records, perform calculations, and analyze data

January 2018-July 2019

Research Student

Department of Biology

The University of Mississippi, University, MS

- Organize mycorrhiza database
- Perform meta-analysis of mycorrhiza database analysis
- Maintain and generate new information from publications for mycorrhiza database

June 2017-July 2017

International Research Experience for Students (IRES)

National Science Foundation International Research Experience for Students

Department: BioMolecular Sciences at University of Mississippi,

Project Location: Hajnowka and Bialystok, Poland

- Organizer of first International Conference for Polish Botanical Society at Politechnika Bialostocka
- Perform various pharmacognosy and chemistry laboratory techniques
- Analyzed ectomycorrhiza fungi from various plants

Teaching Experience

2022	Biomolecular Sciences II (Professional Pharmacy Students-P1)	1 hour
2022	Physiology: CNS Cell Types Function	1 hour
2022	Microbiology: Allied Health Nursing Students	1 hour
2022	Enrolled in Teaching in Pharmacology Course	1 hour

Professional Appointments

2019-Summer 2021

University of Mississippi Graduate School Ambassador

Graduate School

The University of Mississippi, University, MS

- Participate and organize recruiting events
- Serve as a liaison for students, faculty, and staff

2016-November 2019

UofM Pre-College Programs Counselor

Division of Outreach

The University of Mississippi, University, MS

- Participate and organize leadership events

- Serve as a liaison for students, faculty, and staff
- Counselor for UofM competitions (UMAIT, BrainBrawl, Mathcounts, Science Olympiad, etc.)

June and July 2018

Ole Miss Summer College Counselor

Division of Outreach

The University of Mississippi, University, MS

- Serve as a counselor to high school students

Presentations

- 2022** **Oral Presentation for Dissertation Research Prospectus**
- Uncovering the IGF-1 Signaling Mechanisms Responsible for Neuroprotection Following Stroke
 - **Cellas Hayes**, Miguel De Leon, Nyah I. Morgan, Brandon Ashmore, Akshaya Vijansankar, and Dr. Nicole Ashpole
 - Department of Biomolecular Sciences, School of Pharmacy
- 2021** **Poster Presentation at University of Mississippi Glycore Mid-Year Biology Conference**
- “AGE/RAGE Signaling Impacts on Healthspan: Early-life Cognitive Assessments”
 - **Cellas Hayes**, Brandon Ashmore, Miguel De Leon, Nyah Morgan, Dr. James Stewart, and Dr. Nicole Ashpole
 - Department of Biomolecular Sciences, School of Pharmacy
- 2021** **Poster Presentation at Society for Neuroscience**
- “Neuroendocrine modulation alters cellular protection in the neurogliovascular unit”
 - **Cellas Hayes**, Brandon Ashmore, Akshaya Vijayansankar, Jessica Marshall, and Dr. Nicole Ashpole
 - Department of Biomolecular Sciences
- 2021** **Oral Presentation at University of Mississippi Glycore Biology Conference**
- “AGE/RAGE Signaling Impacts on Healthspan: Early-life Cognitive Assessments”
 - **Cellas Hayes**, Brandon Ashmore, Miguel De Leon, Nyah Morgan, Dr. James Stewart, and Dr. Nicole Ashpole
 - Department of Biomolecular Sciences, School of Pharmacy
- 2021** **Original Research Proposal Qualifying Exam**
- “Cannabigerol, Cognition, and Lifespan”
 - **Cellas Hayes**
 - Department of Biomolecular Sciences, School of Pharmacy
- 2021** **Virtual Poster Presentation at Black in X Conference 2021**

- “Neuroendocrine modulation alters cellular function in the neurogliovascular unit and learning and memory in vivo”
- **Cellas Hayes**, Brandon Ashmore, Akshaya Vijayasankar, Erik L. Hodges, Jessica Marshall, and Dr. Nicole Ashpole
- Department of Biomolecular Sciences, School of Pharmacy
- Received 1st place for virtual poster competition

2019 Diversity Session Poster Presentation at Society for Neuroscience 2019

- "Reductions in hippocampal IGF-I signaling in adulthood negatively regulates neuron structure and cognition”
- **Cellas Hayes**, Erik L. Hodges, Jessica Marshall, and Dr. Nicole Ashpole
- Department of Biomolecular Sciences, School of Pharmacy

2019 Poster Presentation at Society for Neuroscience 2019

- "Reductions in hippocampal IGF-I signaling in adulthood negatively regulates neuron structure and cognition”
- **Cellas Hayes**, Erik L. Hodges, Jessica Marshall, and Dr. Nicole Ashpole
- Department of Biomolecular Sciences, School of Pharmacy

2018 Oral Presentation at Annual Biomedical Research Conference for Minority Students (ABRCMS) 2018

- “Reduction of IGF-I Receptor in the Adult Hippocampus Impairs Learning and Memory”
- **Cellas Hayes** and Dr. Nicole Ashpole
- Department of Biomolecular Sciences, School of Pharmacy

2018 Oral Presentation at the University of Mississippi for 50 Congressional Delegates from Washington D.C. 2018

- “Aspects of IGF-I and the aging brain”
- What does it mean to be an undergraduate researcher?

2018 Oral Presentation at Mississippi Academy of Science 2018

- “Reduction of IGF-I Receptor in the Adult Hippocampus Impairs Learning and Memory”
- **Cellas Hayes** and Dr. Nicole Ashpole
- Department of Biomolecular Sciences, School of Pharmacy
- Received Award of 2nd Place in Cell and Molecular Biology Division

2018 Poster Presentation at Mississippi Academy of Science 2018

- “Reduction of IGF-I Receptor in the Adult Hippocampus Impairs Learning and Memory”
- **Cellas Hayes** and Dr. Nicole Ashpole
- Department of Biomolecular Sciences, School of Pharmacy
- Received Award of Overall 5th Place (out of 208 posters)

Service

2022	UM Speaker's Edge Judge	2 hours
2021-2022	Letters to a PreScientist	4 hours
2021	University of Massachusetts Amherst STEM Talk	2 hours
2020-Present	Diversity Equity and Inclusion School of Pharmacy Committee, Graduate Student Representative	12 hours
2021	Guide to College- First Generation College Student Presentation/STEM given to Byhaila High School-Keynote Speaker	2 hours
2021	Guide to College- First Generation College Student Presentation/STEM given to Murrah High School-Keynote Speaker	1 hour
2020	Keynote Student Speaker on "How to Get to Graduate School" for McNair Scholars	1 hour
2018-2019	Ole Miss Ambassador	110 hours
2019	Guide to College- First Generation College Student Presentation given to Sigma Beta Club-Keynote Speaker	1 hour
2019	Division of Outreach First Generation High School Student Keynote Speaker	1 hour
2019	UofM MOST Conference Panel Guest Speaker with Director of Fraternity and Sorority Life, Assistant Director of Fastrack, Director of Health Profession Office, Assistant Professor of Chemistry, and Assistant Dean of Engineering	3 hours
2019	Division of Outreach First Generation High School Student Keynote Speaker	1 hour
2019	Bramlett Elementary STEM Club	10 hours
2016-2018	Oxford High Way Pickup	12 hours
2016-2018	Competition Corps Events	90 hours
2016-2018	Big Event	15 hours
2018	Out of the Darkness Suicide Awareness Walk	2 hours
2018	Minority Association of Premedical Students Health Walk	1 hours
2017	Multiple Sclerosis Bike Race	6 hours
2017	Oxford Boys and Girls Club Fall Festival	3 hours
2017	Oxford Intermediate Mentoring	10 hours
2016	Autism Walk	1 hour
2016	Relay for Life	2 hours
2016	Christ Temple Halloween Carnival	4 hours
2015	Green Grove Recycling	3 hours
2015	Fall Festival at Crenshaw Elementary	5 hours

Memberships

- **American Chemical Society**-Member since 2021
- **Rho Chi**, the Academic Honor Society of Pharmacy-member since 2021
- **Interdisciplinary Association for Population Health Science**-Member since 2020
- **American Heart Association**-member since 2020
- **Society for Neuroscience** - Member since 2019
- **Charter Member of MAPS (Minority Association of Pre-medical Students)** at the University of Mississippi-Member since Spring 2017 when chartered, served as Vice-President
- **Phi Beta Sigma Fraternity Inc.**, member from Spring 2016-Present, Served as Secretary in Fall 2016, served as President Fall 2018
- **The National Society of Collegiate Scholars**-member from Spring 2016-May 2019
- **The Society of Collegiate Leadership and Achievement**-member from Spring 2016- May 2019
- **Eta Sigma Phi Honor Society**-member from Spring 2016- May 2019
- **University of Mississippi Pulse Leadership Conference**-participation of UofM Pulse Leadership Conference in 2017