Joseph C. Mays

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EDUCATION

New York University School of Medicine, New York, NY — August 2018–Present
PhD, Sackler Institute of Graduate Biomedical Sciences

Colgate University, Hamilton, NY — May 2016
Bachelor of Arts, Molecular Biology (with honors) & Classical Studies
Cumulative GPA: 3.59, Magna Cum Laude

HONORS & AWARDS

2016	NIDCD Director's Award, NIH
2016	Beta Beta Beta Biology Honor Society, Colgate University
2016	Eta Sigma Phi Classics Honor Society, Colgate University
2016	N.L. Andrews Prize for Excellence in the Classics, Colgate University
2013–2016	Dean's Award for Academic Excellence, Colgate University
2016	James M. Maury M.D. Scholarship, Colgate University
2016	Marion A. Cincotta Scholarship, Colgate University
2012–2015	North Eastern Roofing Educational Foundation Scholarship, NERCA
2014	Lila & Curtiss Frank Scholarship, Colgate University

RESEARCH EXPERIENCE

National Institute on Deafness and other Communication Disorders,
National Institutes of Health, Bethesda, MD
Post-baccalaureate Fellow, Laboratory of Cochlear Development — *July 2016–August 2018*
Mentors: Dr. Michael Kelly, PhD; Dr. Matthew Kelley, PhD

- Evaluated the role of histone acetylation in cell identity maintenance and fate plasticity in the developing mammalian cochlea
- Characterized cellular heterogeneity within the mammalian cochlea using several single-cell RNA sequencing platforms
- Explored transcriptomes of mammalian pineal gland cells and their role in circadian rhythms in collaboration with the Nat'l Institute of Child Health and Development
- Applied bioinformatics analyses and software to analyze and interpret high-dimensional sequencing data
- Mentored undergraduate students in project management and laboratory techniques
- Collaborated with several NIH labs to share single-cell genomics experience and skills
- Managed a large colony of several transgenic mouse strains for use in experiments
- Presented novel research at regional and national hearing research conferences

Intern, Laboratory of Cochlear Development — *June 2015–December 2015*
Mentors: Dr. Kathryn Ellis, PhD; Dr. Matthew Kelley, PhD

- Identified lineage relationships of cell types in the mammalian cochlea through clonal analysis
- Analyzed gene expression in the cochlea using immunohistochemistry and confocal microscopy over several developmental time points
- Engaged in biology coursework for the Colgate University-NIH off-campus study program

Colgate University, Hamilton, NY
Research Assistant, Department of Biology *January 2014–May 2014*
Mentor: Dr. Douglas Guarneri, PhD

- Assisted Prof. Guarneri in continuing research on stress-induced gene expression in mice
- Validated complex plasmid maps through restriction enzyme digestion
- Implemented software solutions to provide virtual models of plasmids, restriction digests, and site-directed mutagenesis to aid future experimental designs

EMPLOYMENT EXPERIENCE

Colgate University, Hamilton, NY
Technology Assistant, Classics Department *February–May 2016*

- Prepared and maintained presentation equipment for Prof. Ammerman's weekly classes

MedLabs Diagnostics, Cedar Knolls, NJ
Intern, Department of Molecular Diagnostics *June–August 2014*

- Performed amplification-based diagnostic assays to test samples for bacteria and parasites
- Participated in diagnostic method comparison studies and method validations
- Compiled and edited standard operating procedures for new diagnostic instruments and methods

Colgate University, Hamilton, NY
Lifeguard, Lineberry Natatorium *January 2013–May 2015*

LEADERSHIP EXPERIENCE

Colgate University, Hamilton, NY
President, Colgate Classics Society *Spring 2015, Spring 2016*

- Coordinated outreach events with Classics Department faculty to broaden interest in the department and its course offerings
- Communicated and collaborated with society members during bi-monthly meetings
- Managed a semester budget for team-building and outreach events

TEACHING EXPERIENCE

National Institute on Deafness and other Communication Disorders, National Institutes of Health, Bethesda, MD
Instructor, EARssentials Mouse Cochlea Dissection Workshop *July 2016, July 2017*

- Co-taught laboratory workshop on neonatal mouse cochlea micro-dissection

ORAL PRESENTATIONS

- *Exploration of a multicellular phenotype in cochlear tissue using single-cell RNA-sequencing methods.* NIDCD Trainee Talks, NIH, June 2017.
- *Drop-Seq as a low-cost, high-throughput method for single-cell gene expression profiling of cochlear cells.* NIDCD Division of Intramural Research Retreat, NIH, May 2017.
- *Using Seurat and Monocle for analysis of single-cell RNA-sequencing data.* NIAMS Bioinformatics Interest Group, NIH, April 2017.
- *Lineage tracing in the developing mammalian cochlea.* Colgate University Honors Talks, April 2016.
- *Doing science in college.* (Invited Speaker) West Milford High School Science Honor Society, March 2016.

POSTER PRESENTATIONS

- *Single-cell pineal gland neuro-transcriptomic analysis reveals cell type-specific day/night changes.*
  NICHD Division of Intramural Research Retreat, NIH, September 2017.
- *Drop-seq as a low-cost, high-throughput method for single-cell gene expression profiling of cochlear cells.*
  Post-baccalaureate Fellow Poster Day, NIH, May 2017.
- *Demonstration of analysis of high-throughput single cell RNA-Seq data using open-source R packages.*
  Pi Day, NIH, March 2017.
- *Drop-seq as a low-cost, high-throughput method for single-cell gene expression profiling of cochlear cells.*
  Association for Research in Otolaryngology Mid-Winter Meeting, February 2017.
- *Lineage tracing in the developing mammalian cochlea.*
  Summer Student Poster Day, NIH, August 2015.

OTHER CONFERENCES ATTENDED

- *Eastern Auditory Retreat*
  Georgetown University, Washington, DC, June 2017.
- *Single Cell Analysis Investigators Meeting*
  NIH Clinical Center, Bethesda, MD, June 2017.

PUBLICATIONS

Mays JC, Kelly MC, Coon SL, Holtzclaw L, Rath MF, Kelley MW, and Klein DC. (2018) Single-cell RNA sequencing of the mammalian pineal gland identifies two pinealocyte subtypes and cell type-specific daily patterns of gene expression. PLOS ONE 13(10): e0205883.
PubMed 30347410 Codebook