

# Alicia J. Barber, MPhil

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## Education

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**Dartmouth College** *Hanover, NH* Expected Spring '24

Doctor of Philosophy, Integrative Neuroscience

- High-Passed PhD Qualifying Exam: *Effects of Estrogen Signaling on Epigenetics & Neuroprotection in an Alzheimer's Murine Model*

**University of Cambridge** *Cambridge, UK* November 2018

Master of Philosophy, Translational Biomedical Research

Overall Mark: 69.1% (Upper Second) | Thesis Mark: 72% (First) \*UK Grading System

- Formulated an original theoretical clinical trial for surgical treatment of cervical cancer, *Cost Efficiency Analysis of Robotically-Assisted Trachelectomy*, that was chosen as best design and presentation

**Union College** *Schenectady, NY* June 2017

Bachelor of Science, Neuroscience

Cumulative GPA: 3.64 | Major GPA: 3.7 | Cum Laude

## Research Experience

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**PhD Candidate**, *Dartmouth-Hitchcock Medical Center* – Lebanon, NH July '20 – Present

Advisor: Arti Gaur, PhD

- Focused on identifying sex-specific molecular disease signatures in Alzheimer's disease
- Proficient in murine care & technical procedures (animal handling, breeding, oral gavaging, blood collection, necropsy), RNA isolation, RNA-Seq bioinformatics, immunohistochemistry, flow cytometry

**Research Scientist**, *SUNY Poly. Institute* – Albany, NY August '18 – July '19

Advisor: Scott Tenenbaum, PhD

- Focused on optimizing structurally interacting RNA technology for antiviral and cancer therapeutics
- Performed electrophoretic mobility shift assays, ribonucleoprotein immunoprecipitations, western blots, and cell culture maintenance.

**MPhil Candidate**, *Cambridge Institute for Medical Research* – Cambridge, UK January – July '18

Advisor: Delphine Larrieu, PhD

- Focused on the aberrant DNA damage repair pathway in Cockayne Syndrome and the effect of NAT10 inhibition on premature aging
- Performed IncuCyte live cell analysis, Click-iT cell labeling, fluorescence-activated cell sorting, and immunofluorescence imaging

## Presentations

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### Oral Presentations

Barber et al., *Aged Alzheimer's Murine Model Reveals a Sex-specific Inflammatory Response*

- Dartmouth Neuroscience Day March '23

### Poster Presentations

Barber et al., *Longitudinal Analysis in an Alzheimer's Murine Model Reveals Sex-specific Inflammatory Response*

- Alzheimer's Association International Conference July '23
- Center for Quantitative Biology Meeting April '23
- Guarini Graduate Student Poster Session April '23
- Dartmouth Neuroscience Day March '23

Barber et al., *Elucidating the Role of Protein Translation and NAT10 Inhibition in Cockayne Syndrome*

- Experimental Medicine Training Initiative Research Day July '18

## Teaching and Mentorship

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**Course Creator & Study Leader**, *Osher Lifelong Learning Institute at Dartmouth* September '23

- Developing & teaching a multi-lesson course on Alzheimer's for an adult continuing education program

## Alicia J. Barber, MPhil

### Community Educator, *Alzheimer's Association*

August '22 - Present

- Deliver education programs to individuals in New Hampshire focused on understanding and living with Alzheimer's disease

### Student Mentor, *Polygence*

June '21 – August '22

- Developed independent research projects for high school students and provided guidance and feedback throughout the term

### Student Mentor, *Dartmouth College*

June '20 – Present

- Mentored seven undergraduate students through lab-based research projects, helping design experiments, teach methodology, and analyze and present data

## Science Communication

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### Awardee, *Dartmouth 3 Minute Thesis Competition*

April '23

- Earned 3<sup>rd</sup> place for my talk, "Survival of the fittest: A Sex-specific Inflammatory Response in Alzheimer's Disease"

### Founder, *Brain Health Media, LLC*

March '22 - Present

- Founded a multimedia content creation company focused on interpreting innovations in neuroscience and advocating for patient dignity throughout disease progression

### Speaker

Feb '21 – Present

- Invited onto live UK-based television program, *TalkTV*, to interpret clinical trial results
- Invited to speak for multiple university student groups and podcasts, discussing my experience as a woman in STEM (*UC Irvine, Whittier College, University of Mississippi, be.SolTed Podcast, STEMsational Women*)

### Contributing Writer, *Being Patient*

Feb '21 – Sep '21

- Published articles on a range of dementia-related topics including interviews with early-stage patients and caregivers, summaries of new research and clinical trials, and the impact of the pandemic on memory care facilities
  - Barber, Alicia. "Sharing Our Alzheimer's Journey on TikTok." Sep. 30, 2021
  - Barber, Alicia. "Alzheimer's Drugs Worth Repurposing?" May 28, 2021
  - Barber, Alicia. "Amylyx 'Bulletproof Vest for Neurons' Tested as Potential Alzheimer's Therapy." Mar 24, 2021
  - Barber, Alicia. "Now Recruiting: U.S. Trials for Alzheimer's 'Seaweed Drug' Oligomannate." Mar 8, 2021
  - Barber, Alicia. "Essential Caregiver Program Aims to Reunite Families with Loved Ones in Long-Term Care." Mar 1, 2021
  - Barber, Alicia. "TikTok Sisters Share Early-Onset Alzheimer's Story." Feb. 12, 2021

## Public Health Policy, Advocacy, and Awareness

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### Walk to End ALZ Planning Committee Member, *Alzheimer's Association*

Sep '22 – Present

- Help to plan, execute, and manage the Upper Walk to End Alzheimer's

### Advocate

March '20 – Present

- Spoke to New Hampshire governor, senators, and representatives in support of SB-234, a bill to fund an Alzheimer's public awareness campaign
- Met with staff of U.S. Senator Jeanne Shaheen, in support of Alzheimer's drug coverage by Medicare
- Spoke at an "Isolation Kills, Too" Rally, urging the governor to sign an Essential Caregiver Bill into law
- Published an Op-Ed in the NY Daily News advocating for changes to nursing home visitation restrictions during the COVID-19 pandemic
  - Barber, Alicia. "Let My Grandmother See Her Family: Her Memories Are Fading Day by Day." Sept. 12, 2020
- Appeared on multiple media outlets urging others to adhere to public health safety measures to protect vulnerable individuals and spoke to the importance of conducting research on Alzheimer's Disease (*People Magazine, CBS 12 News*)