Benjamin Devlin

benjamin.devlin@duke.edu
(412) 977-5152
he/him/his

Permanent Address:
1010 Stillwell Drive, Unit 2102
Durham, NC 27705

PERSONAL OVERVIEW

I am currently a fourth-year graduate student at Duke University in the Psychology and Neuroscience PhD program. I am in Dr. Staci Bilbo's lab where I spend my time studying microglia-neuron interactions, and their role in brain development in rats and mice. I am enthusiastic about teaching and mentoring and am hoping to gain more experiences in Graduate school in both research and teaching to prepare for a successful career in science.

EDUCATION

BS with Honors in Neuroscience and Psychology 05/19
Allegheny College Meadville, PA
Summa cum laude
GPA: 3.9/4.0
Undergraduate Thesis: *Sensory Association and Inhibitory Interneurons in the VPA Rodent Model of Autism*
Advisor: Dr. Jeffrey Hollerman

PhD Candidate in Psychology and Neuroscience 07/19-Present
Duke University Durham, NC
GPA: 4.0/4.0
Advisor: Dr. Staci Bilbo

PUBLICATIONS

Devlin, B. A., Smith, C. J., & Bilbo, S. D. (2021). Sickness and the Social Brain: How the Immune System Regulates Behavior across Species. *Brain, Behavior and Evolution*, 1–14.

Ceasrine, A. M., **Devlin, B**. A., Bolton, J. L., Jo, Y. C., Huynh, C., Patrick, B., Washington, K., Joo, F., Campos-Salazar, A. B., Lockshin, E. R., Murphy, S. K., Simmons, L. A., & Bilbo, S. D. (2021). *Maternal diet disrupts the placenta-brain axis in a sex-specific manner* (p. 2021.11.12.468408). *Nature Metabolism*

Petrozziello, T., Bordt, E. A., Mills, A. N., Kim, S. E., Sapp, E., **Devlin, B**. A., Obeng-Marnu, A. A., Farhan, S. M. K., Amaral, A. C., Dujardin, S., Dooley, P. M., Henstridge, C., Oakley, D. H., Neueder, A., Hyman, B. T., Spires-Jones, T. L., Bilbo, S. D., Vakili, K., Cudkowicz, M. E., … Sadri-Vakili, G. (2022). Targeting Tau Mitigates Mitochondrial Fragmentation and Oxidative Stress in Amyotrophic Lateral Sclerosis. *Molecular Neurobiology*, *59*(1), 683–702.

Ceasrine, A. M., Batorsky, R., Shook, L. L., Kislal, S., Bordt, E. A., **Devlin, B.** A., Perlis, R. H., Slonim, D. K., Bilbo, S. D., & Edlow, A. G. (2021). *Single cell profiling of Hofbauer cells and fetal brain microglia reveals shared programs and functions* (p. 2021.12.03.471177). bioRxiv. *** in preparation**

Smith, C. J., Rendina, D. N., Kingsbury, M. A., Malacon, K. E., Nguyen, D. M., Tran, J. J., **Devlin, B**. A., Clark, M. J., Raju, R. M., Burgett, L., Zhang, J. H., Cetinbas, M., Sadreyev, R. I., Chen, K., Iyer, M. S., & Bilbo, S. D. (2022). *Social deficits induced by pervasive environmental stressors are prevented by microbial or dopaminergic modulation* (p. 2022.02.28.482288). bioRxiv. *** in preparation**

POSTERS AND PRESENTATIONS

Devlin, B., Ceasrine, A., Clark, M., Malacon, K., Jo, Y.C., Bilbo, S. (2021) Investigating the role of a microglia growth factor (IL34) on brain development. *Duke Institute for Brain Sciences Symposium,* Durham, NC (virtual)

Devlin, B., Ceasrine, A., Clark, M., Malacon, K., Jo, Y.C., Bilbo, S. (2020) Expression of two ligands for CSF1r is temporally and regionally distinct in developing mouse CNS. *Cold Spring Harbor Glia*, Cold Spring Harbor, NY (virtual).

Devlin, B., Ceasrine, A., Clark, M., Malacon, K., Jo, Y.C., Bilbo, S. (2021) Effects of a microglia proliferative signal (IL34) on mouse brain and behavior. *Duke Neurobiology Retreat,* Durham, NC.

Devlin, B., Ceasrine, A., Clark, M., Malacon, K., Jo, Y.C., Bilbo, S. (2021) Effects of a microglia proliferative signal (IL34) on mouse brain and behavior. *Duke Glia Camp,* Durham, NC (virtual).

Devlin, B., Crain, A., Palladino, M. (2017) Developing a method to measure mitochondrial RNA import and translation in vitro. *Neuroscience Club Meeting,* Meadville, PA.

Devlin, B., Runyan, C. (2018) Summer Research Experience at Pitt: Investigating the Cortical Basis of Sensory Associations. *Neuroscience Club Meeting,* Meadville, PA.

Devlin, B., Crain, A., Palladino, M. (2017) Developing a method to measure mitochondrial RNA import and translation in vitro. *Center For Neuroscience at the University of Pittsburgh Capstone Presentation,* Pittsburgh, PA.

HONORS AND AWARDS

F31 NRSA 09/22
NIH
3-year award

Cure Alzheimer's Research Fund 06/22
Cure Alzheimer's
2 years, 200,000$ a year

Senior Major Prize in Neuroscience 05/19
Allegheny College

Outstanding Junior Major Prize in Neuroscience 05/18
Allegheny College

Class of '39 Research Fund 12/18
Allegheny College
500$ award for senior thesis research

Student-Research Collaboration Fund 05/18
Allegheny College
$3,500 award for summer research collaboration

Alden Scholar 08/15-05/18
Allegheny College
Alden Scholar (Dean's List) 2015-16
Distinguished Alden Scholar (Distinguished Dean's List) 2016-17, 2017-18

Eagle Scout 07/2015
Boy Scouts of America

Phi Beta Kappa Honors Society Member 05/19-Present
Allegheny College

RESEARCH EXPERIENCE

Graduate Student 07/19-Present
Duke University
Advisor: Dr. Staci Bilbo
***Cure Alzheimer's Research Fund**
***F31 NRSA Training Grant**

Independent Study Research 08/18-05/19
Allegheny College
Advisor: Dr. Jeffrey Hollerman
***Class of '39 Research Fund**

Independent Summer Research Student 06/18-08/18
University of Pittsburgh
Advisor: Dr. Caroline Runyan
***Student-Research Collaboration Fund**

CNUP Summer Undergraduate Research Program 06/17-08/17
University of Pittsburgh
Advisor: Dr. Michael Palladino

Independent Study Research 01/17-06/17
Allegheny College
Advisor: Dr. Jeffrey Cross

TECHNICAL EXPERTISE

Molecular 'wet' lab techniques, including RNA, Protein, and DNA isolation, quantitative PCR, microglia isolations, western blotting, and immunohistochemistry

Coding in Python, R, Bash, and Git for data cleaning, computational model fitting, and analysis of 'big' RNA sequencing datasets, calcium imaging data, and behavior data using DeepLabCut

Survival stereotaxic surgeries in both rats and mice (tracer and viral injection, installation of cannulae, head-plates, and electrodes, also non-survival euthanasia and perfusion techniques)

Cryo-sectioning of fixed brain and peripheral tissue in both rats and mice

Fluorescence and confocal microscopy, *in vivo* two-photon calcium imaging, tissue clearing and lightsheet imaging

Computational image analysis using software tools including Fiji, Ilastik, and Python

Mouse and rat behavioral assays, including: 3-chamber sociability, light/dark box, open field, sucrose preference, elevated plus maze, barnes maze, tube test

TEACHING, MENTORING AND SERVICE

Biological Basis of Behavior Teaching Assistant 1/21-5/22
Duke University Psychology & Neuroscience Department Durham, NC
Professor: Dr. Christina Williams and Dr. Minna Ng

Cellular and Molecular Neuroscience Teaching Assistant 8/20-12/20
Duke University Psychology & Neuroscience Department
Professor: Dr. Pelin Volkan

Introduction to Chemistry Teaching Assistant 08/16-05/17
Allegheny College Chemistry Department
Professor: Dr. Mark Ams

Psychology Research Methods and Statistics Teaching Assistant 08/18-05/19
Allegheny College Psychology Department
Professor: Dr. Robert Hancock

Physiological Psychology Teaching Assistant 01/17-05/19
Allegheny College Neuroscience Department Meadville, PA
Professor: Dr. Jeffrey Hollerman and Dr. Jeffrey Cross

"Neuroscience of Video Games" Freshman Seminar Teaching Assistant 08/16-12/16
Allegheny College Neuroscience Department Meadville, PA
Professor: Dr. Allison Connell-Pensky

Student Mentor
Justin Savage, 01/21-04/21, Graduate Rotation Student
Anna Youngkin, 03/20-05/22, Undergraduate Thesis Student (Defended Spring 2022)
Gabriel Grullon, 08/21-Present, Undergraduate Thesis Student (Senior)
Ashka Shah, 01/22-Present, Sophomore
Jasmine Parker, 06/21-08/21, High School Senior, Duke University Neuroscience Experience (DUNE) Program
Lillian Orstad, 06/22-08/22, High School Senior, Duke University Neuroscience Experience (DUNE) Program
Alec Deakin, 08/22-Present, Undergraduate Senior

Mental Health Volunteer 09/18-12/18
Crawford County Mental Health Awareness Program (CHAPS) Meadville, PA

AD HOC JOURNAL REVIEWER

Star Protocols