CURRICULUM VITAE

NAME: **Abbie C. Chapman, Ph.D.**
Formerly Abbie C. Johnson, PhD

CURRENT POSITION: Assistant Professor

ADDRESS: Binghamton University - SUNY
Psychology Department
Behavioral Neuroscience Program
4400 Vestal Parkway East
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BIRTHDATE: September 2, 1986- Bar Harbor, ME

EDUCATION:

Ph.D. Neuroscience, 2015
University of Vermont, Burlington, VT

B.S. Biology, 2008
Concentration: Neuroscience
University of Maine School of Biology & Ecology, Orono, ME

POSTITIONS/EMPLOYMENT

2024 *Assistant Professor, Tenure Track*, Behavioral Neuroscience Program, Dept. of Psychology, Binghamton University, State University of New York, Binghamton, NY

2019 – 2023 *Assistant Professor, Research Scholar Pathway*, Dept. of Neurological Sciences, University of Vermont Larner College of Medicine, Burlington, VT

2015 – 2019 *Postdoctoral Associate*, Dept. of Neurological Sciences, Dr. Marilyn Cipolla's Laboratory, University of Vermont Larner College of Medicine, Burlington, VT

2010 – 2015 *Ph.D. Student*, Neuroscience Graduate Program, University of Vermont College of Medicine, Burlington, VT

2012 *Teaching Assistant*, Phys

0 – 0 *Laboratory Research Technician*, Dept. of Neurology, Unive
College of Medicine , Burlington, VT

2004 *Research Assistant I*, The Jackson Laboratory, Bar Harbor,

HONORS AND AWARDS

2023 **Travel Award**, Cardiovascular Research Institute of Vermont to attend International Society for Cerebral Blood Flow and Metabolism BRAIN/BRAIN PET Biennial Meeting, Brisbane, Australia

2021 **Viridis Montis Early Career Investigator Research Competition Finalist**, Cardiovascular Research Institute of Vermont

2020 **Viridis Montis Early Career Investigator Research Competition Finalist**, Cardiovascular Research Institute of Vermont

2020 **Early Career Research Award**, Cardiovascular Research Institute of Vermont

2019 **Early Career Research Award**, Cardiovascular Research Institute of Vermont

2018 **Young Investigator Travel Award**, International Society for the Study of Hypertension in Pregnancy Biennial Meeting, Amsterdam, Netherlands

2017 **Outstanding Paper by an Associate Member Award**, Perinatal Research Society

2016 **Travel Award**, Cardiovascular Research Institute of Vermont to attend Society for Reproductive Investigation Annual Meeting, Montreal, Canada

2016 **Best New Investigator Poster Award**, Society for Reproductive Investigation

2016 **Travel Award**, Cardiovascular Research Institute of Vermont to attend International Society for Cerebral Blood Flow and Metabolism BRAIN/BRAIN PET Biennial Meeting, Brisbane, Australia

CURRENT RESEARCH SUPPORT

1R01 NS127284-03 NIH National Institute of Neurological Disorders and Stroke and National Institute on Aging
(Percentile: 9.0) 04/01/2022-03/31/2027
"The Role of the Hippocampal Vasculature in Vascular Cognitive Impairment and Dementia"

This project investigates changes in hippocampal arteriole function that occur with healthy aging and in the setting of chronic hypertension, and how these changes affect hippocampal hemodynamics, neurovascular coupling and neuroplasticity to accelerate cognitive decline.
PI: Abbie Chapman, PhD

PRIOR RESEARCH SUPPORT

20CDA35310239 American Heart Association Career Development Award (Percentile: 0.21) 07/01/2020-06/30/2023; NCE until 12/31/23
"Hippocampal Vascular Function in Chronic Hypertension and Post-Stroke Dementia"

The goal of this project is to investigate the novel contributions of the hippocampal vasculature to post-stroke memory impairment during chronic hypertension. Three critical aspects of cerebrovascular function will be investigated in the hippocampus, including vascular reactivity and perfusion, neurovascular coupling, and blood-brain barrier function as underlying mechanisms by which focal cerebral ischemic stroke causes hippocampal disruption and post-stroke dementia. Another goal of this project is career development; to cultivate professional skillsets necessary for a successful transition to independence and to lead a productive research program.
PI: Abbie C. Johnson, PhD; Primary Mentor: Mark T. Nelson, PhD; Secondary Mentor: Marilyn J. Cipolla, PhD

2R01 NS093289-06 NIH National Institute of Neurological Disorders and Stroke
07/01/21 – 6/30/26
"Targeting Pial Collaterals for Acute Stroke Treatment"

The goals of the project are to investigate mechanisms of improving collateral flow through lemptomeningeal anastamotic arterioles during a large vessel occlusion to improve stroke outcome. My responsibilities consist of overseeing implantation of cerebral oxygen telemeters and measurements of brain tissue oxygenation and neurological deficits after ischemic stroke.
PI: Marilyn J. Cipolla, PhD
Role: Collaborator

R01 NS108455-04 NIH National Institute of Neurological Disorders and Stroke
07/01/18-06/30/23
"Hippocampal Arterioles and Brain Injury in Preeclampsia and Eclampsia"

This project investigates hippocampal arteriole structural changes during preeclampsia and how these changes affect hippocampal blood flow and cognitive impairment.
PI: Marilyn J. Cipolla, PhD
Role: Co-Investigator

Cardiovascular Research Institute of Vermont Early Career Research Award
07/01/20-06/30/21
"Hippocampal Vascular Mechanisms of Post-Stroke Dementia"

The goal of this project is to investigate the novel role of the hippocampal vasculature in post-stroke dementia during chronic hypertension, including investigation of changes in

hippocampal arteriolar function and hemodynamics in response to elevated circulating proinflammatory cytokines after ischemic stroke.
PI: Abbie C. Johnson, PhD, Mentor: Marilyn J. Cipolla, PhD

Cardiovascular Research Institute of Vermont Early Career Research Award
07/01/19-06/30/20
"Preliminary Data on Hippocampal Vascular Function in Chronic Hypertension and Post-Stroke Dementia"

The goals of this project are to provide proof-of-principle evidence that the blood-brain barrier is disrupted in the hippocampus during chronic hypertension that may increase the susceptibility of the hippocampus to long-lasting injury after ischemic stroke. Further, this project will provide critical preliminary data that hippocampal-dependent memory is disrupted secondary to ischemic stroke in a model of chronic hypertension.
PI: Abbie C. Johnson, PhD, Mentor: Marilyn J. Cipolla, PhD

14PRE18590005 American Heart Association Predoctoral Fellowship, 01/01/14-3/31/15
"The Role of the Blood-Brain Barrier in Seizure during Pregnancy and Preeclampsia"

The goal of this project was to understand pregnancy-specific changes occurring in the cerebrovasculature that may be contributing to seizure onset during normal pregnancy and preeclampsia and to understand the mechanism of action by which magnesium sulfate prevents seizure during preeclampsia.
PI: Abbie C. Johnson, Sponsor: Marilyn J. Cipolla, PhD

PEER REVIEWED PUBLICATIONS

Gannon O, Tremble SM, McGinn C, Guth R, Scoppettone N, Hunt RD, Prakash K, **Johnson AC**. Angiotensin II-mediated hippocampal hypoperfusion and vascular dysfunction contributes to vascular cognitive impairment in aged hypertensive rats. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association* 2024; 20(2):890-903. doi: 10.1002/alz.13491. Epub 2023 oct 10.

Cipolla MJ, Tremble SM, DeLance N, **Johnson AC**. Worsened stroke outcome in a model of preeclampsia is associated with poor collateral flow and oxidative stress. *Stroke* 2023; 54(2):354-363. doi: 10.1161/STROKEAHA.122.041637.

Whitaker EE, **Johnson AC**, Tremble SM, McGinn C, DeLance N, Cipolla MJ. Cerebral blood flow autoregulation in offspring from experimentally preeclamptic rats and the effect of age. *Front Physiol* 2022; doi: 10.3389/fphys.2022.924908. Epub 2022 June 6.

Johnson AC, Tremble SM, Cipolla MJ. Experimental preeclampsia causes long-lasting hippocampal vascular dysfunction and memory impairment. *Front Physiol* 2022; doi: 10.3389/fphys.2022.889918. Epub 2022 May 9.

Johnson AC, Uhlig F, Einwag Z, Cataldo N, Erdos B. The neuroendocrine stress response impairs hippocampal vascular function and memory in male and female rats. *Neurobiol Dis* 2022; doi: 10.1016/j.nbd.2022.105717. Epub 2022 April 5.

Cipolla MJ, Tremble SM, DeLance N, Allison D, **Johnson AC**. Treatment with apocynin selectively restores hippocampal arteriole function and seizure-induced hyperemia in a model of preeclampsia. *J Cereb Blood Flow Metab* 2022; doi: 10.1177/0271678X221080092. Epub 2022 February 9.

Whitaker EE, **Johnson AC**, Miller JE, Lindn(r)1 (J)-2 bEZhlolla M J
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Johnson AC, Li Z, Orfila JE, Herson PS, Cipolla MJ. Hippocampal network dysfunction as a mechanism of early-onset dementia after preeclampsia and eclampsia. *Prog in Neurobiol* 2020; doi: 10.1016/j.pneurobio.2020.101938.

Rosehart AC, **Johnson AC**, Dabertrand F. Ex vivo pressurized hippocampal capillary-parenchymal arteriole preparation for functional study. *Journal of Visualized Experiments* 2019 Dec 18(154); doi: 10.3791/60676.

Johnson AC, Miller JE, Cipolla MJ. Memory impairment in spontaneously hypertensive rats is associated with hippocampal hypoperfusion and hippocampal vascular dysfunction. *J Cereb Blood Flow Metab* 2019; doi: 10.1177/0271678X19848510.

Johnson AC, Cipolla MJ. Impaired function of cerebral parenchymal arterioles in experimental preeclampsia. *Microvasc Res* 2018 April 26; 119:64-72. doi:10.1016/j.mvr.2018.04.007.

Johnson AC, Hammer ES, Sakkaki S, Tremble SM, Holmes GL, Cipolla MJ. Inhibition of blood-brain barrier efflux transporters promotes seizure in pregnant rats: Role of circulating factors. *Brain Behav Immun* 2017 July. pii: S0889-1591(17)30233-7. doi: 10.1016/j.bbi.2017.

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INVITED REVIEWS

Johnson AC. Focused Update in Cerebrovascular Disease:

UNIVERSITY SERVICE AND COMMITTEES

2024 – 2025 *Member*, Psychology Department Colloquium Committee
2024 – 2025 *Member*,

2009 – 2023	Vermont Chapter of the Society for Neuroscience
2017 – 2019	National Postdoctoral Association
2015 – 2019	

Krant N, Tremble S, **Johnson AC**. Hippocampal neuroinflammation occurs after focal cerebral ischemic stroke that may contribute to post-stroke memory loss. *Hypertension* 2023; 10.1161/hyp.80.suppl_1.013.

Johnson AC, Tremble S, McGinn C, Guth R, Scoppettone N, Prakash K. Angiotensin II-Mediated Hippocampal Hypoperfusion and Vascular Dysfunction Impairs Memory in Aged Spontaneously Hypertensive Rats. Accepted for oral presentation at the BRAIN/BRAIN PET Meeting in June, 2023.

Johnson AC, Guth R, Scoppettone N. Hippocampal Vascular Dysfunction is Present Prior to the Onset of Age-Related Memory Decline in Chronic Hypertension. Accepted for poster presentation at the American Physiology Summit April 2023.

Cipolla MJ, Tremble SM, DeLance N, **Johnson AC**. Worsened Stroke Outcome in a Model of Preeclampsia is Associated with Poor Collateral Flow and Oxidative Stress. Accepted for poster presentation at International Stroke Conference February 2023.

Johnson AC, Tremble SM, Cipolla MJ. Oxidative Stress Impairs Hippocampal Vascular Function During Chronic Hypertension. Accepted for poster presentation at BRAIN/BRAIN PET Meeting May, 202.C

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Johnson AC, Morielli A, Tremble S, Cipolla M. Pregnancy Decreases Hippocampal Slice Excitability and Activity of NMDA Receptors. *Repro Sci* 2016; 23 (1 Supplement): 118A.

Johnson AC, Sakkaki S, Cipolla M. Inhibition of Efflux Transporters at the Blood-Brain Barrier Induces Spontaneous Seizure in Pregnant Rats. *Repro Sci* 2016; 23 (1 Supplement): 118A.

Johnson AC, Cipolla MJ. Magnesium Sulfate ($MgSO_4$) Increases Seizure Threshold via Reduced Neuroinflammation in a Rat Model of Preeclampsia. *Preg Hyperten* 2015; 5(1):27 [53-OR].

Johnson AC, Chan SL, Moseley J, LaMarca B, Cipolla MJ. The Effect of Experimental Preeclampsia on Cerebral Blood Flow Autoregulation (CBFAR) and Cerebrovascular Function. *FASEB J* 2014; 28:680.22.

Merhi Z, Cooper K, Doswell A, **Johnson AC**, Cipolla MJ. Pregnancy and Preeclampsia Alter the Rat Hypothalamic-Ovarian Reproductive Axis. *Repro Sci* 2014; 21 (3 Supplement): 329A.

Johnson AC, Cipolla MJ. Pregnancy Increases Seizure-Induced Vasogenic Brain Edema in Rats. *Repro Sci* 2014; 21 (3 Supplement): 284A.

Johnson AC, Tremble SM, Cipolla MJ. Decreased Seizure Threshold during Pregnancy and Experimental Preeclampsia: Roles for $GABA_A$ Receptors and Microglial Activation. *Repro Sci* 2014; 21 (3 Supplement): 100A.

Chapman AC, Chan SL, Cipolla MJ. An Enhanced Myogenic Vasodilatory Response to Hypotension in Posterior Cerebral Arteries of Pregnant Rats is Nitric Oxide Dependent. *Repro Sci* 2012; 19 (3 Supplement): 175A.

Chapman AC, Toufexis DJ. The Role of Ghrelin in the Expression of Cued-Fear Conditioning. *Society for Neuroscience* 2011; 302.11.

Cipolla MJ, Chan SL, **Chapman AC**, Godfrey JA. Inhibition of PPARγ during pregnancy causes inward remodeling of brain parenchymal arterioles. *FASEB J* 2010; 24:979.4.

Chan SL, **Chapman AC**, Cipolla MJ. Effect of Peroxisome Proliferator-activated Receptor Gamma (PPARγ) Inhibition during Pregnancy on Resistance Artery Function. *Repro Sci* 2010; 17 (3 Supplement): 326A.

Amburgey ÖA, **Chapman AC,** Bernstein IM, Cipolla MJ. Acute Exposure to Preeclamptic Plasma Increases Blood-Brain Barrier Hydraulic Conductivity: Role of VEGF. *Repro Sci* 2010; 17 (3 Supplement): 327A.

Amburgey ÖA, **Chapman AC**, Bernstein IM, Cipolla MJ. Effects of Preeclamptic Plasma on Cerebral Artery Reactivity, Tone and Endothelial Vasodilator Production. *Repro Sci* 2010; 17 (3 Supplement): 329A.

Gokina NI, Kuzina OY, Vance A, **Chapman AC**, Cipolla MJ. Inhibition of PPARγ during Rat Pregnancy Causes Intrauterine Growth Restriction and Attenuation of Endothelium-Dependent Uteroplacental Vasodilation. *Repro Sci* 2010; 17 (3 Supplement): 152A.

ORAL PRESENTATIONS

The Hippocampal Vascular Supply and its Role in Vascular Cognitive Impairment and Dementia.

Dept. of Neurological Sciences Grand Rounds, University of Vermont Larner College of Medicine, Burlington, VT, April, 2022

The Role of the Hippocampal Vasculature in Vascular Cognitive Impairment and Dementia.

Vermont Center for Cardiovascular and Brain Health Symposium, Burlington, VT, June 2021

Impaired Hippocampal Neuroplasticity as an Underlying Mechanism of Early-Onset Dementia after Preeclampsia and Eclampsia
Viridis Montis Early Career Investigator Challenge in Cardiovascular Disease, Cardiovascular Research Institute of Vermont, Burlington, VT, February 2021

Memory Impairment during Chronic Hypertension is Associated with Hippocampal Hypoperfusion and Hippocampal Vascular Dysfunction
Viridis Montis Early Career Investigator Challenge in Cardiovascular Disease, Cardiovascular Research Institute of Vermont, Burlington, VT, February 2020

Status Convulsions during Pregnancy and Experimental Preeclampsia Cause Long-Lasting Hippocampal Dysfunction
Dept. of Pharmacology Annual Research Retreat, University of Vermont, Burlington, VT, November 2019

Mechanisms of Seizure during Pregnancy and Preeclampsia
Dept. of Neurological Sciences Grand Rounds, University of Vermont College of Medicine, Burlington, VT, February, 2015

Magnesium Sulfate ($MgSO_4$) Increases Seizure Threshold via Reduced Neuroinflammation in a Rat Model of Preeclampsia
International Society for the Study of Hypertension in Pregnancy World Congress, New Orleans, LA, October, 2014

The Effect of Experimental Preeclampsia on Cerebral Blood Flow Autoregulation (CBFAR) and Cerebrovascular Function
Experimental Biology Meeting, San Diego, CA April, 2014

Decreased Seizure Threshold during Pregnancy and Experimental Preeclampsia: Roles for $GABA_A$

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