

Rachel A. Zacharias

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Education

Anticipated 2020 PhD, Boston College, Chestnut Hill, MA

Dec 2014 BS in Psychology and Neuroscience, Minors in Statistics and Biology
Baldwin Wallace University, Berea, OH
GPA: 4.00/4.00 scale

Honors & Awards

Jul 2014 WVU Neuroscience Retreat Poster Presentation Winner
May 2014 Psi Chi Research Grant (\$5,000)
May 2014 Baldwin Wallace Ovation Poster Presentation Award Winner
May 2014 Dr. Jennie S. Hwang Award (Awarded to one woman in the Greater Cleveland area)
May 2014 Kenneth and Lucy McCauliff Scholarship and Research Grant
May 2014 Theodore S. Bogardus Scholarship
Mar 2014 Edith C. Robinson Neuroscience Research Grant
Aug 2013 Lillian and Larry D. Bibbee Scholarship
Aug 2013 Alpha Lambda Delta Trow Scholarship
Dec 2013 Dayton C. Miller Honor Society (top 4% of student body)
Apr 2013 Psi Chi International Honor Society in Psychology
Apr 2013 Pi Gamma Mu International Social Sciences Honorary Society
Apr 2013 Nu Rho Psi National Honor Society in Neuroscience
Aug 2012 Baldwin Wallace University Alpha Lambda Delta National Honor Society
President, February 2013-2014
Aug 2011 - Baldwin Wallace University Presidential Scholarship
2014
Aug 2011 - Baldwin Wallace University Dean's List
2014
Aug 2011 - STEM/Choose Ohio First Scholarship Program
2014

Professional Experience

Jul 2015 – Present *Graduate Student*
Supervisor: Dr. Michael McDannald
Research Area: Neural circuits of fear learning; early life stress, optogenetics
Jan 2015 – Jul 2015 *Laboratory Technician*
Supervisor: Dr. Clare Mathes
Research Area: Gustatory discrimination learning
Duties: Equipment set up; running behavioral testing; drug administration
Jan 2014 – Dec 2014 *Neuroscience Senior Thesis*
Supervisor: Dr. Brian Thomas
Research Area: Treatment of a Rat Model of PTSD with Acetazolamide and Corticosterone

Duties: Literature review; IACUC application submittal; rat injections; predator scent stress exposure; behavioral testing (Elevated Plus Maze & Acoustic Startle); animal care; data analysis; writing of manuscript; oral defense

- Jan 2012 – Dec 2014 *Assistant to the Lab Director, Tissue Culture Team Leader & Research Assistant, Baldwin Wallace University Neuroscience Laboratory*
Supervisors: Dr. Christopher Turner & Dr. Jacqueline Morris
Research Areas: Effects of Anesthesia; Tissue Culture; Behavioral Testing
Duties: Neonatal and adult rat behavioral testing (Prepulse Inhibition, Ultrasonic Vocalization & Developmental Milestone testing); histology; tissue culture; neonatal and adult animal injections; animal care; journal club presentations and discussions; assisted with ordering chemicals and lab equipment; cell counting; data collection and analysis; literature review; writing manuscript for publication
- May 2014 – Jul 2014 *Intern, West Virginia University Summer Undergraduate Research Internships (SURI) Program*
Supervisor: Dr. Miranda Reed
Research Areas: Identifying risk factors for Alzheimer's disease; Determining the role of tau in diabetes
Duties: Behavioral testing; Western blotting; Data analysis; Poster presentations
- May 2013 – May 2014 *Neuroscience Laboratory Animal Husbandry*
Supervisor: Dr. Jacqueline Morris
Duties: Complete health checks and cage wash to care for laboratory animals
- Aug 2013 – Dec 2013 *Tutor, Baldwin Wallace University Learning Center*
Supervisor: Renee Timberlake
Classes Tutored: Principles of Neuroscience, Elements of Statistics, Lab in Statistical Methods
- Jan 2013 – May 2013 *Assistant, Neuroscience Senior Thesis*
Supervisor: Sarah Terrill
Research Area: The role of exercise on eating and forebrain activity
Duties: Perform c-Fos assays; mounting brain sections
- Jan 2013 – May 2013 *Baldwin Wallace University Principles of Neuroscience Course Assistant*
Supervisor: Dr. Brian Woodside
Duties: Compile grades; handle sensitive information concerning student grades; hold study sessions; individual student tutoring
- Aug 2012 – May 2013 *Psychology Thesis*
Supervisor: Dr. Charles Levin
Research Area: Correlational Study of Addictive Personality Types and Fast Food Consumption
Duties: Literature review; HSRB application submittal; survey coding and setup; data analysis; writing of full manuscript; oral presentation
- Jan 2012 – May 2013 *Volunteer, Mental Health Therapy Dog Training for Berea Psychologists*
Supervisor: Lorraine Hanson

Duties: Basic command training; advanced/service commands training; public access training for service dogs

Jan 2012 – Aug 2012

*Assistant to the Lab Director and Research Assistant,
Baldwin Wallace University Neuroscience Laboratory*

Supervisor: Dr. G. Andrew Mickley

Research Areas: Learning and Memory; Fear extinction; Fetal Latent Inhibition

Duties: Rat behavioral testing; fetal and adult animal injections; histology; animal care; data analysis; journal club presentations and discussions; assisted with preparing articles for journal submission; assisted with ordering chemicals and lab equipment

Jan 2012 – May 2012

Research Assistant,

Baldwin Wallace University Neuroscience Laboratory

Supervisor: Dr. G. Andrew Mickley

Duties: Assisted with laboratory experiments; rat behavioral testing; completed animal care; collected and entered data

Laboratory Skills

Stereotaxic Surgery
Optogenetics Testing
Laser Cable Construction
Optogenetic Implant
Construction
MED-PC Coding
MATLAB Coding
Animal Husbandry
Rat Breeding

Animal Sacrificing
Perfusions
Pretreatment Inhibition Testing
Developmental Milestone
Testing
Animal Injections
Conditioned Taste Aversion
Testing
Elevated Plus Maze Testing

Tissue Mounting
Tissue Staining
Neuronal Dissections
Cell Culture and
Maintenance
Tissue Culture Staining
Cell Imaging
Ultrasonic Vocalization
Testing

Publications

Brown, BP, Kang, SC, Gawelek, K, **Zacharias, RA**, Anderson, SR, Turner, CP, & Morris, JK. (2015). *In vivo* and *in vitro* ketamine exposure exhibits a dose-dependent induction of activity-dependent neuroprotective protein in rat neurons. *Neuroscience*, 290, 31-40.

Invited Talks

“Job Chat” for Teen Psych Program. (2016, Aug. 25). Boston Museum of Science.

Presentations

Zacharias, RA & McDannald, MA. (2016, Nov. 13). *A causal role for the ventrolateral periaqueductal grey in aversive prediction error signaling*. Presentation at the Society for Neuroscience meeting in San Diego, CA.

Zacharias, RA & McDannald, MA. (2016, May 6). *A causal role for the ventrolateral periaqueductal grey in aversive prediction error signaling*. Presentation at the Boston College Graduate Research Day.

Zacharias, RA & McDannald, MA. (2016, Apr. 7). *Behavioral and neural interventions for disrupted behavior due to early life stress*. Presentation at the Boston College Behavioral Neuroscience Data Club.

- Zacharias, RA***, Gifford, JJ*, & Turner, CP. (2014, Nov. 17). *Proposed considerations for analysis of prepulse inhibition*. Poster presentation at the FUN session of the Society for Neuroscience meeting in Washington, D.C. (*These authors contributed equally.)
- Zacharias, RA***, Gifford, JJ*, Turner, CP, & Thomas, BL. (2014, Sept. 20). *Prepulse inhibition: Are we inhibiting our results, too?* Platform presentation at the 2014 Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience at Wabash College. (*These authors contributed equally.)
- Zacharias, RA**, Rudy, CC, & Reed, MN. (2014, Jul. 21). *Tau pathology in mice with STZ-induced diabetes*. Poster presentation at the WVU Neuroscience Retreat in Wheeling, WV.
- Zacharias, RA***, Gifford, JJ*, Kang, S, Turner, CP, & Thomas, BL. (2014, Jun. 11). *Exposure to NMDA receptor antagonists at P7 alters prepulse inhibition at P21 in rats*. Poster presentation at the International Behavioral Neuroscience Society meeting in Las Vegas, NV. (*These authors contributed equally.)
- Zacharias, RA***, Gifford, JJ*, Kang, S, Turner, CP, & Thomas, BL. (2014, May 1). *Neonatal exposure to ketamine alters prepulse inhibition in a rodent model of schizophrenia*. Poster presentation at 2014 Baldwin Wallace University Ovation, Berea, OH. (*These authors contributed equally.)
- Brown, B, Kang, S, Gawelek, K, **Zacharias, RA**, Slawski, D, Wiles, N, Anderson, S, Sirline, L, Morris, JK & Turner, CP. (2013, Nov. 11). *In vivo and in vitro ketamine exposure exhibits a dose-dependent induction of ADNP in rat cortical neurons*. Poster presentation at the Society for Neuroscience meeting in San Diego, CA.
- Gifford, JJ, **Zacharias, RA**, De Asis, A, Kang, S, & Turner, CP. (2013, Nov. 11). *Neonatal exposure to ketamine produces behavioral deficits in prepulse inhibition*. Poster presentation at the Society for Neuroscience meeting Faculty for Undergraduate Neuroscience poster session in San Diego, CA.
- Mickley, GA, Rogers, MM, **Zacharias, RA** & Turner, CP. (2013, Nov. 9). *Baldwin Wallace University – The Society for Neuroscience’s Undergraduate Neuroscience Program of the Year 2012*. Poster presentation at the Society for Neuroscience meeting in San Diego, CA.
- Gifford, JJ, **Zacharias, RA**, Rogers, MM, De Asis, A, Kang, S, & Turner, CP. (2013, Sep. 28). *Neonatal exposure to ketamine produces behavioral deficits in prepulse inhibition*. Poster presentation at the 2013 Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience at Wabash College.
- Brown, B, Kang, S, **Zacharias, RA**, Gawelek, K, Anderson, S, Slawski, D, Sirline, L, Turner, CP, & Morris, J. (2013, Sep. 28). *In vivo and in vitro ketamine exposure exhibits a dose-dependent induction of ADNP in rat cortical neurons*. Platform presentation at the 2013 Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience at Wabash College.
- Brown, B, **Zacharias, RA***, Gawelek, K*, Anderson, S, Wiles, N, Turner, CP, & Kang, S. (2013, Apr. 27). *Ketamine-induced injury in cultured primary cortical neurons*. Poster presentation at Baldwin Wallace University Ovation, Berea, OH. (*These authors contributed equally.)
- Mickley, GA, Hoxha, N, Luchsinger, J, & Rogers, M. (2012, Oct. 14). *Chronic dietary magnesium-L-threonate speeds extinction of a conditioned taste aversion*. Poster presentation at the Society for Neuroscience Conference, New Orleans, LA.

Memberships

Nov 2016 – Present	Women in Learning
Aug 2012 – Present	Society for Neuroscience
Aug 2011 – Dec 2014	Baldwin Wallace University Psychology Club
Aug 2011 – Dec 2014	Baldwin Wallace University Interdisciplinary Neuroscience Society