

# Rachael Hart Earls

[rhart678@uga.edu](mailto:rhart678@uga.edu) 770 712 5565 <https://www.linkedin.com/in/rachael-earls/>

## CAREER SUMMARY

---

Dynamic and self-motivated translational scientist with over 6+ years of research experience focusing on a wide range of biological disorders. Advanced knowledge of scientific research, literature, and statistical analysis in clinical and bench science settings. Highly skilled at presenting complex scientific data to a broad audience and engaging in robust scientific exchange. Exceptional interpersonal skills and high emotional intelligence that will immensely benefit networking and developing relationships with collaborators. Transformational leadership ability through example, accountability, collaboration, and execution. Can provide clinical and evidenced-based expertise to resolve critical matters and propose corrective actions.

## EDUCATION

---

University of Georgia, Doctor of Philosophy (PhD) in Neuroscience

August 2020

University of Georgia, Bachelor of Science (BS) in Psychology

May 2014

## SKILLS

---

- Exceptional written and verbal communication skills of complex scientific content
- Independently research and investigate information related to a specific disease and biological material
- Efficient time management and organizational skills
- Knowledgeable of Good Laboratory Practices (GLP).
- Ability to multi-task in a fast-paced environment and work effectively under tight timelines
- Highly collaborative with extensive team leadership experience
- Ability to multi-task in a fast-paced environment and work effectively under tight timelines
- Advanced in vitro and in vivo scientific technical skills:
  - Animal research (Husbandry, Stereotaxic surgery, organ/cell extraction, behavior, health), polymerase chain reaction (PCR), DNA sequencing nucleic acid extraction, aseptic/sterilization techniques (certified), immunohistochemistry (immunofluorescence and bright field), confocal microscopy, optical density analysis, qRT-PCR, gel electrophoresis, flow cytometry, Western Blot, RNA/DNA Isolation/ Purification/ Quantification, tissue cryosectioning, high performance liquid chromatography (HPLC), CRISPR/CAS9, intraperitoneal and subcutaneous animal injections, ELISA Assay, cell death assays, cell proliferation/viability assays, immune cell therapies.
- Computational Skills: Microsoft Office, GraphPad Prism, Statistical Analysis System (SAS), Photoshop, Image J

## PROFESSIONAL EXPERIENCE

---

**Graduate Research Assistant in the College of Veterinary Medicine.** Athens, GA

August 2016-Present

*University of Georgia, Department of Physiology and Pharmacology*

- Conducting translational research assessing a novel immune cell therapy for the treatment of Parkinson's Disease in animal models. Wrote four first-author publications and assisted with two co-author publications highlighting this data
- Attended 12+ local, regional, and national professional meetings and presented data to various audiences comprised of academic researchers, healthcare providers, and the community.
- Taught Principles of Physiology I/II and Neuroanatomy lecture courses for four semesters, and gave invited lecture on neuroinflammation to graduate students
- Voted as the president of Graduate Student organization

**Clinical Research Coordinator in Department of Psychology**

May 2014-May 2016

*Clinical and Cognitive Neuroscience Laboratory*

- Managed the development and progression of a clinical research study and supported the implementation of best practices
- Managed a collaborative team comprised of physicians, research scientists, and primary investigators to recruit participants and ensured the execution of all project components for each participant.
- Generated Institutional Review Board Documents, Amendments, and summary statements.
- Presented scientific findings at international conferences
- Promoted collaboration through the distribution of imaging, clinical, and cognitive data sets through data sharing tools such as Research Electronic Data Capture (RedCap) and Neuroinformatics Data

Base (NIDB) to other study sites.

## **PUBLICATIONS**

---

1. **Rachael H. Earls\***, Kelly B. Menees\*, Jaegwon Chung, Jessica Carpenter, Nikolay Filipov, Jae-Kyung Lee\* Differential effects of age and sex on splenic leukocyte composition and natural killer cell effector functions in C57BL/6 mice. *In preparation*
2. **Rachael H. Earls**, Jae-Kyung Lee. The role of natural killer cells in neurodegenerative diseases. Review. *Under Review. Experimental and Molecular Medicine*
3. **Rachael H. Earls\***, Kelly B. Menees\*, Jaegwon Chung\*, Claire-Anne Gutekunst, Hyun-Joon Lee, Rada Balazs, Manuel G. Hazim, Levi Wood Jae-Kyung Lee\* NK cells clear  $\alpha$ -synuclein and the depletion of NK cells exacerbates synuclein pathology in a mouse model of  $\alpha$ -synucleinopathy. *Published*. Proceedings of the National Academy of Sciences (PNAS) January 2020.
4. **Rachael H. Earls**, Kelly B. Menees, Jaegwon Chung, James Barber, Claire-Anne Gutekunst, Manuel G. Hazim, Jae-Kyung Lee\* Intrastratial injection of pre-formed alpha-synuclein fibrils alters central and peripheral immune cell profiles in non-transgenic mice. *Published*. Journal of Neuroinflammation. December 2019.
5. Xi Fang, Jaegwon Chung, Erik Olsen, Isabelle Snider, **Rachael H. Earls**, Julie Jeon, Hea Jin Park, Jae-Kyung Lee. Depletion of Regulator-of-G-protein signaling-10 in mice exaggerates high-fat diet-induced insulin resistance and inflammation, and this effect is mitigated by dietary green tea extract. *Published*. Nutrition Research. June 28 2018.

### **Presentations** \*only 10 most recent presentations listed\*

**Rachael H. Earls**. *Immune cell compositional perturbations in a pre-clinical mouse model of Parkinson's disease*. Invited student speaker for University of Georgia and Emory collaborative lab meeting. Oral presentation. September 2019.

**Rachael H. Earls**, Kelly Menees, Jaegwon Chung, Claire-Anne Gutekunst, Manuel G. Hazim, Hyun-Joon Lee, Jae-Kyung Lee. *Depletion of natural killer cells augment synuclein pathology in a preclinical mouse model of Parkinson's disease*. Gordon Conference on Parkinson's disease. Mewry, Maine. Poster. June 2019

Kelly Menees, Jaegwon Chung, **Rachael H. Earls**, Jae-Kyung (Jamise) Lee. *NK cells scavenge extracellular  $\alpha$ -syn aggregates and modulate synuclein pathology in a mouse primary neuron co-culture system*. Gordon Conference on Parkinson's disease. Mewry, Maine. Poster. June 2019

**Rachael H. Earls**. *Depletion of NK cells exacerbates synuclein pathology and motor deficits in a preclinical mouse model of Parkinson's disease*. Regenerative Bioscience Symposium. Athens, Georgia Oral Presentation. May 2019.

**Rachael H. Earls**. *Elucidating the role of natural killer cells in Parkinson's disease*. Selected monthly seminar speaker for UGA Neuroscience program. Athens, Georgia. Oral Presentation. April 2019

**Rachael H. Earls**. *Investigating the function of natural killer cells in a pre-clinical alpha synuclein mouse model of Parkinson's disease*. Monthly departmental speaker for UGA physiology and pharmacology department. Athens, Georgia. Oral Presentation. April 2019

**Rachael H. Earls**. *Inflammation and neurodegeneration*. Invited monthly seminar speaker for Undergraduate Neuroscience Organization (UNO). Athens, Georgia. Oral Presentation. January 2019.

**Rachael H. Earls**, Kelly M. Baker, Jaegwon Chung, Jae-Kyung Lee *Intracerebral injection of pre-formed alpha-synuclein fibrils into mice alters immune cell profiles*. Southeastern Neurodegenerative Disease Conference Orlando, Florida. Oral Presentation & Poster. September 2018

Laura Weinstock, **Rachael H. Earls**, Sitara Sankar, Kelly Baker, Jaegwon Chung, Levi Wood, Jae-Kyung Lee. *Elucidating Natural Killer Cells as a Cell Therapy for Parkinson's disease*. Regenerative Medicine and Engineering Symposium. Poster. July 2018

Kelly Baker, Isabelle Snider, Janna Jernigan, **Rachael H. Earls**, Jae-Kyung Lee. *The Novel Role of RGS10 in Metabolic Homeostasis and Diet-Induced Obesity in Age- and Sex-Specific Manners*. Graduate Students and Post Docs in Science Research Symposium. Poster. April 2018

## **LEADERSHIP AND OUTREACH**

---

- Volunteer*, **Skype A Scientist** January 2020
- Serve as a volunteer scientist to skype K-12 students, adults in correctional facilities, and educators to answer any questions regarding my work in an engaging manner with the overarching goal of exciting people about the world of scientific research.
- Volunteer*, **Clark County School District Science and Engineering Fair** January 2020
- Serve as a judge for high school and middle school students' science and engineering projects and share my graduate research with students in an accessible manner to promote biomedical research
- Elected Member of the Board*, **Experiential and Professional Development Student Advisory Board** August 2019- Present
- Provide input and feedback to an initiative sponsored by the Graduate School at UGA to enhance support for scientific careers outside of academia and serve as an ambassador for speaking events around campus to foster collaborations among student organizations.
- President*, **Graduate Students & Post-Docs in Science**, University of Georgia. August 2018-August 2019
- Oversaw organization of 200+ graduate students and postdoctoral fellows, planned annual Career Symposium and Research Day events, facilitated networking between departments across campus, fundraised for organization
- Program Liaison*, **Integrated Life Sciences Program**, University of Georgia. April 2017-Present
- Serve as a program contact for prospective students admitted to graduate school at UGA to help ease their transition into graduate school
- Recipient*, **National Science Foundation (NSF) graduate scholars, leadership, engagement, and development fellowship award** May 2016
- One of twelve participants selected from a national pool of STEM PhD's trained to communicate research to stakeholders, the general public, and researchers outside of our scientific discipline and foster collaborations
- Volunteer*, **Neuroscience For Kids**, Barrow County Elementary School. Athens, Georgia. January 2016-May 2017
- Teach elementary school children anatomy and function of the brain through interactive, weekly lesson plans
- Volunteer*, **Athens Regional Hospital Pediatric Rehab & Neurology Units**, Athens, Georgia. May 2012-2014
- Volunteer in the waiting room of the Pediatric Rehab unit interacting with children and their families promoting comfort, social interaction, and positive activity
- Volunteer*, **Extra Special People**, Athens, Georgia. May 2012-2014
- Created developmentally appropriate activity days for children ages 3-18 with a broad range of neurodevelopmental disorders (Autism, Down syndrome, Angelman syndrome). Utilized behavioral modification programs for disabled children with problematic behavior
- Student Athlete*, **University of Georgia Women's Tennis Team**, Athens, Georgia. June 2010- January 2012
- Part of the number one recruiting class in the nation for Women's Division 1 tennis teams in 2010 reaching rankings of number four in the country.

