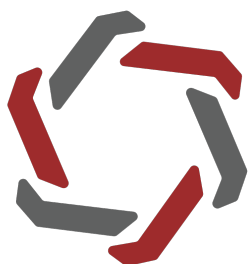


# PROVOST'S EXCELLENCE INITIATIVE AWARD



## CAROLINA AUTISM & NEURODEVELOPMENT CENTER

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### Progress Report FY2019 – FY2023

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<b>Co-I's</b>	Jessica Klusek, Ph.D. (ASPH, COMD)	Jessica Green, Ph.D. (CAS, Psychology)
	Jessica Bradshaw, Ph.D. (CAS, Psychology)	Sarah Edmunds, Ph.D. (CAS, Psychology and EDUC, Special Education)
	Caitlin Hudac, Ph.D. (CAS, Psychology)	Robert Hock, Ph.D. (SOWK, Social Work)
	Katie Wolfe, Ph.D. (EDUC, Special Education)	David Mott, Ph.D. (SOM, PPN)
	Abigail Hogan, Ph.D. (ASPH, COMD)	Vignesh Narayanan, Ph.D. (CEC, CSE)
	Fiona Hollis, Ph.D. (SOM, PPN)	Ana Pocivavsek, Ph.D. (SOM, PPN)
	Kristy Welshhans (CAS, Biol. Sciences)	Christian O'Reilly, Ph.D. (CEC, CSE)
	Erik Drasgow, Ph.D. (EDUC, Edu. Studies)	Deanna Smith, Ph.D. (CAS, Biol. Sciences)
	Daniel Foster, Ph.D. (SOM, PPN)	Elizabeth Will, Ph.D. (ASPH, COMD)
	Sofia Lizaragga, Ph.D.* (CAS, Biol. Sciences; *left USC Jan 23)	

We were awarded \$4.8M from the Provost Excellence Initiative to establish the *Carolina Autism and Neurodevelopment (CAN) Center* in June 2019. Detailed progress reports have been provided to the USC Provost at close of FY20, FY21, and FY22. For this report, we provide a high-level summary of our progress over June 2019 to March 2023 focusing on measurable outcome from our funding to date and our plans for moving the CAN center forward.

## **Background and Significance**

Autism is a complex neurobiological disorder that occurs in 1 in 44 persons with more persons diagnosed annually with autism than AIDS, pediatric cancer, and diabetes combined. Importantly for USC, the prevalence of autism may be higher in SC, with 1 in 28 (3.62%) of our state's children being affected. **The central objective of this Excellence Initiative Award is to build a multi-disciplinary Autism and Neurodevelopmental Disorders Center of Excellence at USC that spans from bench to bedside to classroom and back.**

We started our efforts as the *University of South Carolina Autism and Neurodevelopment Disorders (USCAND) Center*. As we grew from faculty recruitments and interest of other USC faculty, colleges and schools, we added staff for assisting with community outreach, recruiting for our research subject registry, and coordinating Center events and activities. We established an executive steering committee for the Center in FY22, with Jessica Bradshaw serving as Chair in FY22 and Caitlin Hudac serving as Chair starting in FY23. With our growth, increasing momentum, and outward facing community engagement, we rebranded as the Carolina Autism and Neurodevelopment (CAN) Research Center, which we think much better emphasizes the Center's ultimate goal to have broad outreach and impact for the greater Carolina community. The specific aims for the initiative as originally funded were accomplished with tremendous success, meeting or exceeding each benchmark. In the text below, we outline our team's accomplishments using the benchmarks of success originally proposed and funded.

## **Aim 1: Increase USC's research capacity in autism and neurodevelopment disorders through six new faculty hires.**

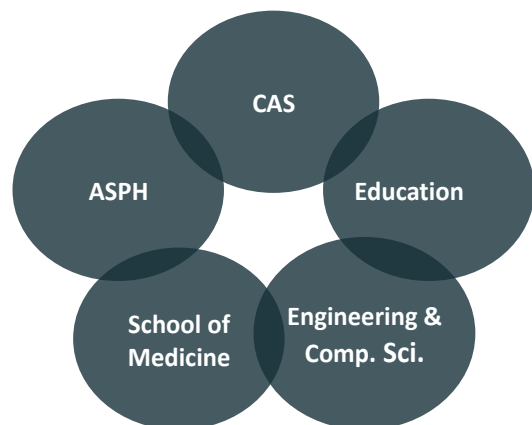
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### **Success Benchmarks**

CAN co-PIs will work with respective departments, colleges and schools to recruit six new faculty that increase critical mass for programmatic funding efforts.

### **Accomplishments**

**We have had tremendous success, with eight tenure-track faculty hires, and a ninth pending for FY24.** This exceeded the initial proposed six hires and has greatly increased USC's research capacity by working collaboratively across colleges through joint appointments and leveraging existing initiatives as detailed below. Notably, these hires span across the university, with new faculty joining the College of Arts and Sciences, College of Education, College of Engineering and Computing, Arnold School of Public Health, and School of Medicine (**Figure 1; Appendix B**). We clearly exceeded our goal of bringing new interdisciplinary expertise in autism and neurodevelopmental disorders research to USC.



**Figure 1:** Faculty Hires Across 5 Colleges

**Table 1** details the home unit and expertise for these new CAN Center faculty. The new CAN faculty hires represent diverse fields to advance interdisciplinary science including expertise in human development and treatment, preclinical animal and molecular models of autism, drug development, genetic and biomarker discovery, and computational neuroscience. Note that as the Center efforts and momentum evolved, some of our later hires were from ongoing faculty searches that were not originally targeted for CAN research areas. We were able to contribute startup costs for these recruits, which for many of these searches brought a more competitive and successful recruitment package (**Appendix A**). The fact that multiple colleges advanced faculty lines that aligned with CAN beyond those originally targeted reflects the high value and significant impact that units and university leaders see in CAN. As such, CAN has advanced beyond the vision developed by the PI's Twiss and Roberts to be fully embraced by the larger university community, which is a testament to its success and enduring impact that represents a tremendous return on USC's investment.

**Table 1: CAN Faculty Recruitments**

<i>FY</i>	<i>Recruit</i>	<i>Home Dept</i>	<i>Research Focus</i>	<i>CAN Contribution</i>
2020	Fiona Hollis, Ph.D.	Pharmacology, Physiology, & Neuroscience Dept, <i>School of Medicine</i>	Metabolic influences on synapse function & neuron connectivity	<ul style="list-style-type: none"> <li>• Startup</li> </ul>
2021	Kristy Welshhans, Ph.D.	Biological Sciences Dept, <i>College of Arts &amp; Sciences</i>	Molecular & cellular developmental neurobiology	<ul style="list-style-type: none"> <li>• Startup</li> <li>• Salary</li> <li>• Lab renovation</li> </ul>
2021	Sarah Edmunds, Ph.D.	Psychology Dept., <i>College of Arts &amp; Sciences</i> Special Education Prgm, <i>College of Education</i>	Neurodiversity-informed interventions for functional impairments in autism	<ul style="list-style-type: none"> <li>• Startup</li> <li>• Salary + Fringe</li> </ul>
2021	Abigail Hogan, Ph.D.	Communication Sciences & Disorders Dept, <i>Arnold School of Public Health</i>	Emergence, trajectories, and predictors of anxiety in autism & <i>FMRI</i> -associated conditions	<ul style="list-style-type: none"> <li>• Startup offset</li> </ul>
2022	Christian O'Reilly, Ph.D.	Computer Science Dept & Artificial Intelligence Inst, <i>College of Engineering &amp; Computing</i>	Machine learning approaches to gain better understanding for brain function in neurodevelopmental disorders	<ul style="list-style-type: none"> <li>• Startup</li> <li>• Salary + fringe</li> </ul>
2022	Vignesh Narayanan, Ph.D.	Computer Science Dept & Artificial Intelligence Inst, <i>College of Engineering &amp; Computing</i>	Modeling & data-integrated approaches to understand neural networks.	<ul style="list-style-type: none"> <li>• Startup offset</li> </ul>
2022	Caitlin Hudac, Ph.D.	Psychology Dept, <i>College of Arts &amp; Sciences</i>	Identifying biomarkers needed for targeted treatments for individuals with autism & intellectual disabilities	<ul style="list-style-type: none"> <li>• Startup</li> <li>• Salary + fringe</li> <li>• Lab renovation</li> </ul>
2022	Daniel Foster, Ph.D.	Pharmacology, Physiology, & Neuroscience Dept, <i>School of Medicine</i>	Understanding regulation of neurotransmission to develop novel therapeutic targets for neurological disorders	<ul style="list-style-type: none"> <li>• Startup offset</li> </ul>
2024	Elizabeth Will, Ph.D.	Communication Sciences & Disorders Dept, <i>Arnold School of Public Health</i>	Developmental pathways in children with genetic conditions associated with intellectual disability & autism	<ul style="list-style-type: none"> <li>• Startup offset</li> </ul>

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## **Aim 2: Build a collaborative Center of Excellence through new opportunities to enhance multi-disciplinary approaches and cultivate innovative collaborations.**

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**Sub-Aim 2a – Establish a lasting interdisciplinary visiting scientist program by funding multi-day visits from the field’s eminent scholars to help guide center faculty and trainees in advancing their research and advancing the CAN Research Center.**

### **Success Benchmarks**

Internationally renowned scientists will visit USC to deliver a lecture and support the promotion of the CAN Research Center and the larger neuroscience community at USC. The CAN Research Center will support the annual SCAND symposium which represents a statewide consortium focused on autism and neurodevelopmental disorders research involving multiple insitutions across the state. The CAN Research Center will also facilitate public outreach lectures to translate research into practice to improve .

### **Accomplishments**

The COVID pandemic curtailed many of our activities for cultivating collaborations, as it pushed us to a virtual format for many meetings over 2020 and part of 2021. Nonetheless, we have made substantial advances for Sub-Aim 2a and 2b.

**CAN Interdisciplinary Visiting Scientist Seminar Series.** *Since September 2019, there have been 35 distinguished speakers outside of USC who have delivered lectures to the CAN research scientists and trainees.* Of note, 4 of these lectures targeted community stakeholders to promote engagement across the state and support evidence based practices with 100+ in attendance for most of the lectures. The 35 seminars that have been hosted through the CAN Center are listed in **Appendix C** for full details.

**CAN Center Retreats.** Two annual CAN Center Retreats have been held to date (August 2021 and August 2022). These retreats included talks by new faculty hires, flash talks from other core members and strategic planning. The third CAN retreat is targeted for August 2023, with the primary goals to develop our strategy for success on large scale funding opportunities (e.g., P01, P50, COBRE, T32).

**First Thursdays with CAN.** To foster the burgeoning autism and neurodevelopment research community, the CAN Center hosts a social gathering on the first Thursday of every month (frequently at the Graduate Hotel adjacent to USC campus). This event brings together faculty, trainees, and research staff from across the university to chat about neuroscience and academia in an informal setting. These Informal social events have proven critical for connecting researchers and building collaborations.

**CAN Research Roundup.** To promote research across all academic levels, including students, trainees, faculty, an annual CAN Research Roundup was established in 2022. This event highlights talks by CAN Pilot Award recipients and others followed by a ‘science cluster

conversation hour' to connect researchers. The second CAN Research Roundup is scheduled for April 25, 2023, and we anticipate this will be an excellent venue to promote the outstanding interdisciplinary science being conducted by CAN programs and bring opportunities for building cross-unit collaborations.

**CAN Trainee Committee.** In FY 22, programs were developed to increase participation of our post-doctoral fellows, graduate and undergraduate researchers, and other future graduate students (e.g., postbaccalaureate research staff). We have hosted 1-2 CAN trainee events each semester, including targeted opportunities to meet with invited speakers, social gatherings, professional development, and scientific meet-and-greets (e.g., Science Speed Dating, Fall 2022).

**CAN Statewide Impact: South Carolina Autism and Neurodevelopmental Disorders (SCAND) Consortium (<https://www.scandconsortium.org>).** CAN is a core driver in the statewide efforts of SCAND through leadership, engagement and support. The statewide SCAND consortium was established by Drs. Jeff Twiss and Jane Roberts in 2016. It connects USC CAN faculty and trainees to research scientists at MUSC, Clemson University, Furman University, Greenwood Genetics Center and Claflin University, extending the impact of CAN in science, policy, and community. CAN recently hosted the 4<sup>th</sup> annual statewide SCAND research meeting here in Columbia, which featured internationally renowned keynote speakers as well as talks by faculty, trainees, and stakeholders across institutions with 110 in attendance.

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**Sub-Aim 2b – Establish a pilot grant program to cultivate inter-disciplinary research and precipitate consequential interactions between research fields.**

**Success Benchmarks**

Two CAN Research Center Pilot Awards were issued each year in FY20, FY21, and FY22. Benchmarks for Years 2-5 include completion of the pilot grant aims and generation of data needed for NIH or other grant applications.

**Accomplishments**

We established an NIH-style grant review scoring approach with an interdisciplinary review panel (Biological Sciences, Psychology, Education, and Medicine). The pilot grant applications were from investigators across six of USC's colleges/schools. The pilot grant program brought new faculty into the CAN Center (e.g., Amit Sheth, Robin Dail, Ana Pocivavsek) and precipitated new collaborations (e.g., Bradshaw and Dail), new extramural grant applications AND new extramural grant funding. **Table 2** details the six pilot grants awarded across the funding years.

**Table 2: CAN Funded Pilot Projects** – Pilot projects were funded at \$40,000 each and were required to be interdisciplinary, cross-college/school investigations focused on autism spectrum disorder or other neurodevelopmental disorders.

<i><b>FY</b></i>	<i><b>Investigators</b></i>	<i><b>Project Title</b></i>	<i><b>Outcomes</b></i>
2020	Jessica Bradshaw (College of Arts & Sciences) Amit Sheth & Ugur Kurunscu (College of Engineering & Computing)	<i>Development of an Instrumented, Intelligent Infant Interaction Laboratory for the Prediction of Autism Spectrum Disorder</i>	NSF Major Research Instrumentation proposal focused on Acquisition of a Mobile Observation System for Neurodevelopment Research by Bradshaw (PI), Hudac, Sur, Tong, Roberts (Co-I's) for \$1.4M total costs, 2023-2026.
2020	David Mott & Fiona Hollis (School of Medicine) Jessica Klusek (Arnold School of Public Health)	<i>Role of Amygdala in Emotional and Social Behavioral Deficits in Fragile X Syndrome</i>	2021-2022 ASPIRE Track III Award to Mott, Hollis, Welshhans & Twiss, <i>Role of fMRI in sensory neurons in the pathogenesis of Fragile X Syndrome</i> . NIH multi-PI R01 (Mott & Hollis), <i>Cholinergic signaling effects on social behavior in FXS</i> , planned for June 2023
2021	Robin Dail (College of Nursing) Jessica Bradshaw, & Dexin Shi (College of Arts & Sciences) Victor Iskersky (Neonatology, Prisma Health)	<i>Examining Neonatal Thermal Gradients and Heart Activity as Predictive Risk Factors for ASD in Premature Infants</i>	NIH R01 <i>The Role of Autonomic Regulation of Attention in the Emergence of ASD</i> with Bradshaw (PI) and Dail (Co-I) for \$3.7M total costs [priority score 10, 1%]
2021	Katie Wolfe (College of Education) Jessica Bradshaw (College of Arts & Sciences) Abigail Hogan (Arnold School of Public Health) Robert Hock (College of Social Work)	<i>The Impact of Stress and Stress Reduction Strategies on Parent Fidelity and Child Outcomes</i>	Grant application, <i>A Patient-Centered Approach to Caregiver-Delivered Interventions for Children with ASD</i> , submitted 12/2022 to PCORI for \$6.5M by Bradshaw & Wolfe (co-PI's) with Hock & S Edmunds as co-I's
2022	Ana Pocivavsek (School of Medicine) Jessica Bradshaw & Sarah Edmunds (College of Arts & Sciences) Hodayoun Valafar (College of Engineering & Computing)	<i>Translational Investigation of Peripartum Sleep in Mother and Child: Relevance to Neurodevelopmental Disorders Research</i>	NIH/NIA R21-AG080335, <i>Aging, sleep, and kynurenic acid</i> , with Pocivavsek as PI was funded for 02/2023-01/2025 at total costs of \$409,750.
2022	Christian O'Reilly (AI Inst., College of Engineering & Computing) Xiaoxue Fu, Jessica Bradshaw, & Jane Roberts (College of Arts & Sciences)	<i>Model-driven analysis of autonomic control in ASD using ECG</i>	NSF grant, <i>Representation of Hedonic valence in a naturalistic context across the adult lifespan</i> , submitted 2/2023, with S Shinkareva (PI), C O'Reilly (co-PI) at \$525,000 total costs.



**Sub-Aim 2c – Establish the administrative infrastructure to coordinate activities across the center that will impact neuroscience research and community outreach across the University and South Carolina.**

### **Success Benchmarks**

With the escalation of activities, including an increased number of faculty hires, a third round of pilot grant applications, the establishment of a steering committee, and the need for adaptations due to COVID-19, we developed an administrative support structure for coordination and management to ensure the success of these activities.

## **Accomplishments**

### **Administrative Infrastructure**

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**CAN Steering Committee** – A Steering Committee was established with representatives across multiple departments and colleges representing the breadth of CAN membership. Dr. Jessica Bradshaw served as chair of the Steering Committee this in FY22, with Dr. Caitlin Hudac taking the lead when she joined in August 2022. This group proved instrumental for integrating faculty hires from Aim 1 into the Center, developing and sustaining the activities outlined in Sub-Aim 2a and outreach activities below, and future directions for the Center. Also, this committee has allowed the Center to advance beyond the vision of the co-PIs, with shared leadership to guide the Center’s mission.

**CAN Center Staff** – As the CAN Center grew from faculty recruitments and garnered interest of other USC faculty, we added staff to assist with community outreach, research subject registry, and coordination of Center events and activities.

- An ‘Outreach Coordinator’ position (Elizabeth Dixon) was hired at 50% effort. This effort is dedicated to establishing and building a research registry as well as developing and launching community events (see below).
- A ‘Research Activities Coordinator’ position was advanced to 100% effort (Audrey Weaver). This position broadly serves for communications and events coordination for the activities outlined in Sub-aim 2a, oversight of the pilot grants program, and interface with the research community.

### **Community Engagement & Outreach Endeavors**



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As our programs advanced, we recognized that connections with our community outreach as a critical component of the initiative that brings more immediate impact for individuals and families affected by ASD and other neurodevelopmental disorders. This has also brought a side benefit of highlighting USC’s investment in building the CAN Center (**Table 3**).

**CAN Research Center Social Engagement** – In the spring of 2022, the University of South Carolina Autism and Neurodevelopment Disorders (USCAND) Center rebranded as the Carolina Autism and Neurodevelopment (CAN) Research Center, emphasizing the center’s endeavor to maintain a broad outreach and impact within the greater Carolina community. In line with this rebrand, the CAN Research Center unveiled a new logo (see first page), featuring six

interlocking links, representative of the ongoing collaborations spanning departments and disciplines across the USC campus. The CAN Research Center also debuted [Facebook](#) and [Instagram](#) accounts to increase broader community engagement, with posts highlighting scientific engagement (e.g., conference attendance), ongoing research studies and accomplishments by CAN members, CAN community events, and information on neurodevelopmental disorders.

**Table 3: Summary of CAN Center community events.**

<b>Event title</b>	<b>Location</b>	<b>Date initiated (Frequency)</b>	<b>Description</b>
<b><i>Community engagement / awareness</i></b>	Soda City Market Boot  South Carolina State Museum  EdVenture Children’s Museum  South Carolina Advocacy Day	Sept 2021 (Monthly)  Oct 2022 (Monthly)  Dec 2022 (Quarterly)  March 2023 (Annually)	Provides CAN Center faculty, staff, and trainees the opportunity to share ongoing research efforts at USC with the SC community, provide information about current studies, and recruit families for our research registry.
<b><i>Autism’s Got Talent</i></b>	Virtual event for Autism Awareness Month (April)  	April 2022 (Annual)	In collaboration with the <i>Early Social Development Lab</i> , CAN hosted an online talent show for children and teens with autism with awards donated from multiple venues (Riverbanks Zoo, Fireflies baseball, & a local toy store sponsored prizes).
<b><i>Columbia Fireflies Autism Awareness Night</i></b>	SEGRA Baseball Park, Columbia SC	April 2022	Sensory-friendly event partnered with a local service provider, Meaningful Milestones LLC, for a workshop, activities and information booths. The CAN Research Center sponsored a booth at the event.
<b><i>Autism Family Fair</i></b>	EdVenture Children’s Museum, Columbia SC  	May 2022 (Annual)	A free, sensory-friendly event, allowing children with autism and special needs to explore EdVenture in a more adapted environment, while families can engage with autism service providers and research groups. This provides direct engagement between USC neuroscience researchers and the autism community in a relaxed environment.
<b><i>Mindfulness Group</i></b>	Virtual event	Jan 2022 (sessions weekly x 6)	USC established a free Mindful Group for parents of children with autism. Every week, for six weeks, the mindfulness group met, incorporating mindfulness, Acceptance and Commitment Therapy, and self-compassion practices to support parents’ coping and wellbeing.



**CAN Research Registry.** We developed the CAN Center Research Registry, a database for contact information of families with children with special needs and typically developing children that is accessible to faculty who are conducting research in the area of autism and neurodevelopment. Families in this database have expressed interest in being contacted about research studies and receive periodic updates about new study openings within CAN. This database currently includes 1,164 families (487 with children with autism/special needs; 677 with typically developing children), with approximately five families being added each week. The events outlined above in Table 3 , as well as ongoing collaboration with local pediatricians, OBGYNs, and community partners, have been instrumental in recruiting new families to the research registry. The CAN Research Registry has been highlighted as a strength in multiple recent R01’s that have either been funded or are pending funding with highly favorable scores (Bradshaw, Hogan). With additional funding, we hope to advance the registry to a ‘cell bank’ for induced pluripotent stem cells (iPSCs) that will advance mechanistic research for better understanding of and developing treatments for autism and neurodevelopmental disorders. PI’s Twiss and Roberts were approached by the state (Department of Health and Human Services) to develop a proposal to establish an “Autism Center of Excellence” that focuses on critical statewide needs for timely and accurate diagnoses and treatment for autism. This potential state-supported center would also advance community engagement, expand the registry to include human participants and biospecimens, and support research focused on autism and neurodevelopmental disorders.

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**Sub-Aim 2d – Establish mechanisms to enhance competitiveness for grant applications and identify new funding opportunities.**

**Success Benchmarks**

The increase in critical mass of research programs across disciplines will precipitate new collaborations and pursuit of new grant funding opportunities.

**Accomplishments**

**CAN Supports.** Together with the scientific networking opportunities described above, the CAN Research Center has provided an opportunity for members to receive grant support, including: (1) Facilitates and Equipment templates for NIH, (2) internal aims review by CAN Members; (3) mock grant review sessions; and (4) promotion of relevant grant RFAs. Two CAN grants that utilized these supports have been recently well-scored and are anticipating funding.

**Ongoing Research Productivity.** The CAN Research Center includes 21 Core Faculty Members (**Appendix B**) that are highly active in the Center and 25 Affiliated Faculty that have peripheral activities linked to the Center. Cumulatively, Center faculty bring high impact for the autism and neurodevelopmental disorders research and clinical community across the state of South Carolina as well as being leaders in the USC Neuroscience Community. Briefly, the success of CAN Center Core research programs is summarized by:

- ☑ **\$41,693,850 in New Grant Award + \$16,757,041 in New Awards that are anticipated to fund** (Appendix D). These include extramural funding from NIH (R01, R21, K23, and K99), Department of Education, and numerous private foundations. *Considering USC’s initial \$4.8M investment in this Provost Excellence Initiative, our funded awards +*

*anticipated awards (i.e., pending, Appendix D) will represent more than a 1000% return by end of FY23. Some of the grants pending review are likely to ‘hit’ in FY24. Also, please note that the anticipated awards include 5 of our 9 faculty hires.*

- ☑ **176 Papers and book chapters** from the CAN Core Faculty were published or are currently in press from June 2019 to present (**Appendix E**). Nearly all of these include USC students and post-doctoral fellows as co-authors.
- ☑ **134 Invited Talks and Presentations** were given by CAN Core Faculty from June 2019-present (**Appendix F**). These include presentations at prestigious national/international meetings and leading research institutions.

These and other activities are detailed in Appendix D (Grant Awards and Applications), Appendix E (Publications), Appendix F (Presentations), and Appendix G (Patents and Licensing Agreements), and Appendix H (Faculty awards).

**Efforts to Secure Interdisciplinary/Programmatic Funding.** Since the inception of the CAN Research Center, a major objective has been to bring new grant funding to USC, with a particular focus on increasing collaborative, interdisciplinary research. As noted above, our Pilot Grant Awards precipitated new collaborations and extramural grant funding (**see Table 2**). Our success is also highlighted by the new extramural funds that CAN Center Core Faculty have secured since June 2019).

We have submitted two NIH P50 proposals from the CAN Center targeting RFAs for Autism and related neurodevelopmental disorders where we have expertise,. Although neither was successful as a single programmatic award, each precipitated new NIH and foundation grant applications, with three R01 awards that were generated from these 50 Center Proposals funded to date (**Table 4**).

We will continue to pursue P50 and other programmatic research center type funding mechanisms as announcements come forward. In parallel, we will implement a strategy to pursue more discipline-specific P01 and multi-PI R01s as well as Department of Defense and other foundation mechanisms. We reason that these somewhat smaller mechanisms will allow us to continue to build out collaborative grant portfolio and help to advance the Center’s objectives. We will also continue to work closely with statewide agencies and institutions to expand synergistic efforts between the CAN Research Center and key stakeholders.

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**Table 4: Results Cultivated by CAN Center P50 Grant Applications.**

**Grant Application**

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**NIH/NICHHD P50-HD104434** (PI's - J Roberts & JL Twiss; Co-I's - A Hogan, J Klusek, D Mott, F Hollis, S Lizarraga)

*Autonomic and Sensory Dysfunction in FMRI Conditions: Development, Mechanisms and Consequences.*

Proposed funding period 2021-2026

\$9,673,272 proposed total costs

**Grant applications derived from P50-HD104434:**

1. NIH/NICHHD R01-HD106652 (PI - JE Roberts; Co-I's A Hogan, J Klusek, E Will). *Autonomic and Sensory Dysfunctions in FMR Conditions: Development, Mechanisms and Consequences*, \$3,733,720.
2. NIH/NIA R01-AGO73374 (PI - J Klusek; Co-I's J Roberts). *Aging Symptom Trajectories in Mother Carriers of the FMR1 Premutation, 2022-2027*, \$3,545,468

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**NIH/NICHHD P50-HD109787** (PI's - J Roberts & JL Twiss; Co-I's - J Bradshaw, C Hudac, K Welshhans, A Hogan)

*Autism Center of Excellence - Autonomic Function in Autism Spectrum Disorder: Development, Mechanisms, and Consequences.*

Proposed funding period 2022-2027

\$11,026,715 proposed total costs

**Grant applications derived from P50-HD109787 application:**

1. NIH/NICHHD R01 (PI - J Bradshaw; CoI's – R Dail, C O'Reilly, J Roberts, J Richards), *The Role of Autonomic Regulation of Attention in the Emergence of ASD*, proposed funding 2023-2028, \$3,732,820 proposed total costs [priority score 10, 1%]
  2. Simons Foundation Autism Research Initiative (SFARI) #977898 (PI's – Hudac & Hogan), *Objective neurobiological markers of attention bias in ASD*, proposed funding 2022-2024, \$500,000 proposed total costs.
  3. Simons Foundation Autism Research Initiative (SFARI) #1017736 (PI - PK Sahoo, Co-I's - K Welshhans, C Hudac), *Effect of OCNDS-associated CSNK2A1 mutations on neuronal protein synthesis*, proposed funding 2023-2025, \$400,542 proposed total costs.
  4. NIH/NIMH R01-MH133802-01 (PI - PK Sahoo, Co-I's - K Welshhans, A Jasnow), *Role of SG homeostasis in neurodevelopmental disorders*, proposed funding 2023-2028, \$2,315,300 proposed total costs.
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### **Aim 3: Advance USC Neuroscience Education by Developing a Multi-Departmental Neuroscience Major.**

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#### **Success Benchmarks**

A Neuroscience major will be established at USC through collaborative efforts led by a director and interdisciplinary advisory board. The Neuroscience major will be available in FY 2022 with an initial enrollment of approximately 25 neuroscience majors.

#### **Accomplishments**

The Neuroscience major launched fall of 2022 with 159 students enrolled at the onset which has increased to 210 in just 2 years. A director (Jessica Green) and interdisciplinary advisory board have been appointed with representation from multiple colleges. The stipend for the director was initially supported by CAN but has transitioned to the College of Arts and Sciences. A [Neuroscience Major webpage](#) is in place, and an academic advisor has been trained and is in place to provide student guidance. College of Arts and Sciences provided funding for 50% effort by an academic advisor. Notably, enrollment for the mandatory *Introduction to Neuroscience* course (NSCI 300) has expanded:

- 97 students in 2019-2020
- 158 students in 2020-2021
- 200 students in 2021-2022
- 274 students in 2022-2023

We anticipate the major will grow substantially in FY24 based on accepted 300+ new freshman neuroscience majors admitted for AY 2023-2024 (see **Appendix I** for more details on the Neuroscience major requirements):

## Plans For Advancing the CAN Center

### **Aim 1: Continue to enhance USC's research capacity in autism and neurodevelopment disorders.**

- Remarkably, we exceeded our goal of hiring 6 faculty, with a total of 9 new faculty positions attributable to this Excellence Initiative. While we will not officially pursue tenure track faculty hires in FY 24, we will entertain opportunities to add more tenure track faculty if there is a good fit between the candidates and CAN's mission and if the resources remain available.
- One of the biggest barriers to accelerating the impact of CAN is the fact that our core faculty are physically located in different buildings across the USC primary and medical school campus. As faculty are increasingly successful, the demands on their time expand and restrict the opportunity to engage, network, and collaborate in a shared space. Creating a central, physical CAN space that promotes interdisciplinary interactions and collaborations between researchers, as well as opportunities to engage research participants and community members is the a clear next step to accelerate progress towards treatment.

### **Aim 2: Build a collaborative Center of Excellence through new opportunities to enhance multi-disciplinary approaches and cultivate innovative collaborations.**

- Establishing CAN as a permanent center at USC will occur this year. The application has been initiated and will be reviewed by university and statewide leaders for formal recognition.
- The CAN Interdisciplinary Visiting Scientist Seminar Series will continue with internationally renowned scientists visiting USC to deliver a lecture and support the promotion of CAN and the larger neuroscience community at USC. We will continue supporting public outreach lectures each year, with one targeted for the annual SCAND Symposium scheduled for spring of 2024 in Charleston (statewide autism consortium with CAN representation by Roberts, Twiss, Hudac, and Bradshaw).
- The CAN steering committee will meet quarterly to provide input and advice for CAN. The roles and responsibilities of the administrative coordinator will expand to manage the many activities of the center including the research roundup, SCAND statewide meeting, training activities, social events, newsletters and website.
- One of the top priorities to advance CAN is to acquire recurrent funding to support these efforts. We will approach this from multiple angles including recurring state funding, university support, and extramural funding. Federal funding efforts will target center grants (e.g., P01, P50) and large training grants (e.g., T32) as a primary focus now that the majority of new hires either have funding in hand or have grants under review. With the tremendous success of the CAN to date, we are now poised to pursue these large-scale high impact grants, as well as continue to build our funding portfolio through investigator-initiated awards (R and U series, as well as foundations).
- While we have included community engagement in CAN efforts and either a self-advocate or family member has spoken at each of the statewide SCAND meetings, we will expand community engagement by establishing a community advisory board comprised of diverse

perspectives, including self-advocates, families, treatment specialists, agency leaders, and university leaders. It is critical to establish and maintain these reciprocal relationships to ensure our research, teaching, and community efforts are intentional and informed by the needs of culturally, racially, gendered, and disability status. These quarterly meetings will also be a space to share and interpret research findings with key stakeholders.

- Increase efforts to advance diversity, equity and inclusion (DEI) in CAN and the larger neuroscience community at USC. The CAN Steering Committee will continue to develop regular programming designed to increase and support DEI initiatives across CAN members, such as opportunities for training, conversations with neurodiverse communities about strategies to support communication and engagement, and representation within CAN leadership from stakeholders and self-advocates. Early ideas have included summer research scholarships for underrepresented minority trainees, adoption of a community advisory board, and sponsorship for targeted trainings (e.g., Family Voices training to improve connections between researchers and African American communities).

### **Aim 3: Advance USC neuroscience education and training.**

- The expansion of USC Neuroscience majors will be monitored to ensure continued success for students selecting this training track. In addition, as the major grows, we will identify demographic gaps to ensure that USC is producing top-tier graduates that identify as underrepresented scholars (e.g., racial, first-generation, gendered students).
- Expand academic advising support from part-time to full-time as the number of majors increases. Given the exponential growth of this program, this is an immediate need.
- Continue to ensure course availability and monitor enrollments to ensure students can successfully advance to graduation. As indicated, advocate for instructional support as including potential new professional track faculty hires and encouragement of tenure track faculty to teach courses required or supportive of the Neuroscience Major.
- Continued support for the Director and Interdisciplinary Advisory Board is critical to provide leadership on the curriculum and advocate for support as indicated (e.g., create new courses, sufficient instructional and advising support).
- Less than 50 institutions across the country offer a graduate program in Neuroscience. This is a clear next step for USC and is necessary to be competitive with peer-aspirant institutions doing research in autism and neurodevelopmental disorders. Graduate students would receive extensive interdisciplinary training, develop skills in techniques essential to the research labs of CAN members, and advanced students could serve in GIA roles to support the undergraduate major and promote teaching excellence in our graduate cohorts.



## **APPENDIX A: CAN Core and Affiliated Faculty**

### **Core Faculty**

<i>Name</i>	<i>Department</i>	<i>College</i>
Roberts, Jane	Psychology	Arts and Sciences
Twiss, Jeff	Biological Sciences	Arts and Sciences
Bradshaw, Jessica	Psychology	Arts and Sciences
Edmunds, Sarah	Psychology & Educational Studies	Arts and Sciences & Education
Daniel Foster	Pharmacology, Physiology, & Neuroscience	School of Medicine
Green, Jessica	Psychology	Arts and Sciences
Hock, Robert	Social Work	Social Work
Hogan, Abigail	Communication Sciences & Disorders	Arnold School of Public Health
Hollis, Fiona	Pharmacology, Physiology, & Neuroscience	School of Medicine
Hudac, Caitlin	Psychology	Arts and Sciences
Klusek, Jessica	Communication Sciences & Disorders	Arnold School of Public Health
Lizarraga, Sofia	Biological Sciences	Arts and Sciences
Mott, David	Pharmacology, Physiology, & Neuroscience	School of Medicine
Narayanan, Vignesh	Computer Science and Engineering	Engineering and Computing
O'Reilly, Christian	Computer Science & Engineering	Engineering and Computing
Pocivavsek, Ana	Pharmacology, Physiology, & Neuroscience	School of Medicine
Poulain, Fabienne	Biological Sciences	Arts and Sciences
Richards, John	Psychology	Arts and Sciences
Smith, Deanna	Biological Sciences	Arts and Sciences
Welshhans, Kristy	Biological Sciences	Arts and Sciences
Will, Elizabeth	Communication Sciences & Disorders	Arnold School of Public Health
Wolfe, Katie	Educational Studies - Special Education	Education

### **Faculty Affiliates**

<i>Name</i>	<i>Department</i>	<i>College</i>
Agostinelli, Forest	AI Institute, Computer Science & Engineering	Engineering & Computing
Almor, Amit	Psychology, Linguistics Program	Arts and Sciences
Banerjee, Sourav	Mechanical Engineering	Engineering & Computing
Benitez-Nelson, Claudia	Earth, Ocean, & Environment	Arts and Sciences
Brian, Ali	Physical Education	Education

Cai, Guoshuai	Environmental Health Sciences	Arnold School of Public Health
Dail, Robin	Nursing	College of Nursing
Frizzell, Norma	Pharmacology, Physiology, & Neuroscience	School of Medicine
Hikmet, Neset	Integrated Information Technology	Engineering
Hills, Kimberly	Psychology	Arts and Sciences
Huang, Xianzheng	Statistics	Arts and Sciences
Iskersky, Victor	Pediatrics	School of Medicine
Larson, Leila	Health Promotion, Education, & Behavior	Arnold School of Public Health
Liu, Jiang	Linguistics	Arts and Sciences
Lu, Linyuan	Mathematics	Arts and Sciences
Mathew, Sajish	Drug Discovery & Biomedical Sciences	Pharmacy
Moore, R. Davis	Exercise Science	Arnold School of Public Health
Reynolds, Jennifer	Anthropology	Arts and Sciences
Sheth, Amet	Computer Science & Engineering	Engineering and Computing
Shi, Dexin	Psychology	Arts and Sciences
Stodden, David	Physical Education	Education
Tang, Hengtao	Educational Studies	Education
Tasseva-Kurktchieva, Mila	Linguistics	Arts and Sciences
Wilson, Marlene	Pharmacology, Physiology, & Neuroscience	School of Medicine

## CAN External Advisory Board

### **Marsha Mailick, Ph.D.**

*Emeritus Vice Chancellor for Research and Graduate Education  
The University of Wisconsin-Madison*

### **Joseph Piven, M.D.**

*Thomas E. Casteloe Distinguished Professor of Psychiatry, Pediatrics, and Psychology  
Director of the Carolina Institute for Developmental Disabilities  
The University of North Carolina, Chapel Hill*

### **Gary Bassell, Ph.D.**

*Charles Howard Candler Professor and Chair, Department of Cell Biology  
Emory University*

### **Christopher Cowan, Ph.D.**

*William E. Murray SmartState Endowed Chair of Excellence in Neuroscience  
Professor and Chair, Department of Neuroscience  
Medical University of South Carolina*

## ***APPENDIX B: Summary of EI Expenditures and Commitment***

This appendix contains personal information. Budget information is available upon justified, valid request.

## APPENDIX C: CAN Interdisciplinary Distinguished Scientist Lectures, Meetings and Events

### Interdisciplinary Distinguished Scientists Lectures: 35 total

<i>Date</i>	<i>Lecture</i>
September 10, 2019	<i>“Looking at Looking in Autism: Computational &amp; Psychological Perspectives on Atypical Social Attention”</i> Frederick Shic, Ph.D. University of Washington
September 11, 2019	<i>“The Evolving Role of Everyday Technologies in the Lives of Children with Autism”</i> Frederick Shic, Ph.D. University of Washington
January 13, 2020	<i>“Local protein synthesis during neural development: Implications for health and disease”</i> Kristy Welshhans, Ph.D. Kent State University
January 16, 2020	<i>“Translating EEG Biomarkers in Autism and Fragile X Syndrome: From Mice to Microstates to Minocycline”</i> Lauren Ethridge, Ph.D. University of Oklahoma
January 21, 2020	<i>“Astrocyte-Neuron Communication during Synapse Development for health and disease”</i> Isabella Farhy-Tselnicker, Ph.D. Salk Institute for Biological Sciences
January 29, 2020	<i>“Getting Answers from Babies About Autism”</i> Mayada Elsabbagh, Ph.D. McGill University
February 5, 2020	<i>“Dimensions and Taxons: Catalyzing a New Frontier in Autism Research”</i> Jed Elison, Ph.D. University of Minnesota
February 10, 2020	<i>“Unraveling Mechanisms of Social Deficits in Autism Spectrum Disorders”</i> Katrina Choe, Ph.D. University of California Los Angeles
February 11, 2020	<i>“Catch Me If You Can: Novel Mechanisms of Social Functioning and Intervention in Youth with Autism Spectrum Disorders”</i> Matthew Lerner, Ph.D. Stony Brook University
February 28, 2020	<i>“Understanding (and Supporting) Autistic Girls Through Multi-Method Quantitative Phenotyping”</i> Julia Parish-Morris, Ph.D. Children's Hospital of Philadelphia
April 22, 2020	<i>“Heterogeneity in Autism: Impact of Co-Occurring Psychiatric and Neurodevelopmental Disorders”</i> Kimberly Carpenter, Ph.D.

	Duke University
October 21, 2020	<i>“Progress in Biomarker Development in Autism”</i> James McPartland, Ph.D. Yale University
January 28, 2021	<i>“Hiding in Plain Sight? A Deeper Look at Females on the Autism Spectrum”</i> Clare Harrop, Ph.D. UNC Chapel Hill
February 2, 2021	<i>“Effect of early-life immune activation on the ontogeny of learning: Importance for understanding the etiology of neurodevelopmental disorders”</i> Jaclyn M. Schwarz, Ph.D. Psychological & Brain Sciences, University of Delaware
February 4, 2021	<i>“Considering the Complexity of Interventions for Autism Spectrum Disorder”</i> Sarah Edmunds, Ph.D. Boston Children's Hospital & Harvard Medical School
February 4, 2021	<i>“Social communication in autism spectrum disorder: The role of anxiety and physiological mechanisms in early development”</i> Abigail Hogan, Ph.D. Psychology, University of South Carolina
February 9, 2021	<i>“Neurobiologically-Grounded Signatures of Autism in Infants”</i> Kristina Denisova, Ph.D. Clinical Neurobiology & Psychology, Columbia University
February 9, 2021	<i>“The relationship between language and cognition in monolingual and bilingual children with and without developmental language disorder”</i> Ji Sook Park, Ph.D. Speech-Language Pathology, University of Toronto
February 10, 2021	<i>“Treatments for Core and Co-occurring Conditions in People with Autism and Neurodevelopmental Disorders: Promoting Caregivers as Interventionists”</i> Rose Nevill, Ph.D, BCBA-D Education, University of Virginia
February 11, 2021	<i>“Motor Speech and Cognitive Impairment in Neurodegenerative Disorders.”</i> Sarah Diehl, M.S. Hearing and Speech Sciences, Vanderbilt University
February 16, 2021	<i>“Strategies to Improve Evidence-Based Care for Children and Adolescents with Autism Spectrum Disorder in Community Settings”</i> Paige Cervantes, Ph.D., BCBA Child & Adolescent Psychiatry, NYU Grossman School of Medicine
February 16, 2021	<i>“Advancing Efficient and Equitable Phonological Intervention”</i> Philip N. Combiths, M.A., CCC-SLP Language & Communicative Disorders, San Diego State University
March 24, 2021	<i>“Dynamic Learning and Control for Complex Population Systems and Networks”</i> Vignesh Narayanan, Ph.D. Applied Mathematics & Computational Neuroscience, Washington University in St. Louis
April 26, 2021	<i>“Genes, brain and behavior: Converging biological pathway(s) of ASD”</i> Caitlin Hudac, Ph.D.

	Psychology, University of Alabama
April 27, 2021	<p><i>“Empowering neurodevelopmental studies through benchmarking and modeling”</i>  Christian O’Reilly, Ph.D.  Brain Mapping in ASD, McGill University</p>
April 28, 2021	<p><i>“Neural correlates of information processing and autism risk in infancy”</i>  Margaret Guy, Ph.D.  Psychology, Loyola University Chicago</p>
May 4, 2021	<p><i>“Changing perception of autism through neurophysiological investigation of autistic perception”</i>  Natalie Russo, Ph.D.  Psychology, Syracuse University</p>
May 5, 2021	<p><i>“Early life adversity and the neurodevelopmental origins of health and disease”</i>  Cassandra Hendrix, Ph.D.  Child &amp; Adolescent Psychiatry, NYU Langone Medical Center</p>
December 8, 2021	<p><i>“Measuring Anxiety in Youth with Autism Spectrum Disorder” *</i>  Lawrence Scahill, Ph.D.  Pediatrics, Emory University School of Medicine</p>
February 9, 2022	<p><i>“mRNA Transport, Local Translation &amp; Neurological Disease”</i>  Gary J. Bassell, Ph.D.  Cell Biology, Emory University School of Medicine</p>
April 7, 2022	<p><i>“Increasing Access to Parent-Mediated Interventions for Autism in the Community: Project ImPACT as a Case Example” *</i>  Brooke Ingersoll, Ph.D.  Psychology, Michigan State University</p>
March 3, 2023	<p><i>“SPARKing Research in Autism”*</i>  Wendy Chung, M.D.  Pediatrics, Columbia University</p>
March 3, 2023	<p><i>“Comparative genomics of alcohol use disorders: Translational insights from the Drosophila Model” *</i>  Robert Anholt, Ph.D.  Genetics and Biochemistry, Clemson University</p>
March 17, 2023	<p><i>“Social communication biomarkers: Quantification and qualification for clinical trial improvement”</i>  Sara Jane Webb, Ph.D.  Psychiatry, University of Washington</p>
April 4	<p><i>“Exploring the genetic basis of variation”</i>  Trudy Mackay, Ph.D.  Center for Human Genetics, Clemson University</p>

**\*Community Outreach Lectures**



## APPENDIX D: FY22 Current and Pending Funding for CAN Core Faculty

### Grants awarded & Applications for CAN-Core Faculty (bold)

#### AWARDED EXTRAMURAL GRANTS

*A Multisite Chart Review of Repetitive Behaviors in ASD.* FAR Fund 183955-01 (PI – Towle; Co-I – **S Edmunds**), 2022-2024 [\$42,937 to Edmunds].

*Adhesion mechanisms contributing to the Down syndrome phenotype.* Jerome Lejeune Foundation (PI – **K Welshhans**), 2019-2022 [\$49,730 total costs].

*Aging Language Production in Mothers with the FMR1 Premutation.* NICHD 1R03-HD098291-01 (PI – **J Klusek**), 2019-2021 [\$2,900,521 total costs].

*Aging Symptom Trajectories in Mother Carriers of the FMR1 Premutation.* NIA R01-AG073374 (PI – **J Klusek; Co-I – J Roberts**), 2022-2027 [\$3,545,468 total costs]

*Aging, sleep, and kynurenic acid.* NIH/NIA R21-AG080335 (PI – **A Pocivavsek**), 2023-2025 [\$409,740 total costs].

*An Evaluation of Video Modeling on Teacher Fidelity of Mand Training Across Mand Topographies.* Organization For Autism Research (PI – S McCammon, **Co-I – K Wolfe**), 2020-2021 [\$227 total costs].

*ASHIL mediated transcription networks in autism spectrum disorders.* NIH/NIMH R01-MH127081-01 (PI – **S Lizarraga**), 2022-2027 [\$3,542,521 total costs].

*Autonomic and Sensory Dysfunctions in FMR1 Conditions: Development, Mechanisms and Consequences.* NICHD R01 HD106652-01A1 (PI – **J Roberts; Co-I's – A Hogan, J Klusek**), 2022-2027 [\$3,733,720 total costs].

*Axonal Stress Granules in Spinal Cord Injury.* Craig H. Nielsen Foundation 733151 (PI – **JL Twiss**), 2021-2024 [\$600,000 total costs].

*Behavior Analyst Certification Board Verified Course Sequence and Practicum.* SC DHHS (PI – **K Wolfe**), 2019-2024 [\$658,228].

*Beyond ephrins: unbiased discovery of novel signaling pathways regulating topographic map formation and maturation in vivo.* NIH/NINDS R21-NS124542, (PI – **F Poulain; Co-I Cai**), 2022-2024 [\$407,545 total costs].

*BioGENE Study at the Simons Searchlight 2022 Family Meeting.* Simons Foundation Autism Research Initiative (PI – **C Hudac**), 2022 [\$15,000 total costs].

*Center for Targeted Therapeutics (Targeting Drp1-Fis1 interactions to mediate glucocorticoid-induced pathologies”).* NIH-NIGMS 5P20-GM109091 (PI **F Hollis**), 2022-2024 [\$300,000 total costs].

*Center For Targeted Therapeutics.* NIH/NIGMS P20-GM109091 (PI – I Roninson; **faculty mentor – JL Twiss**), 2017-2023, [~\$50,000 total costs to Twiss].

*Coordinated control of local translation mediates brain development.* Whitehall Foundation, (PI – **K Welshhans**), 2022-202, [\$300,000 total costs].

## AWARDED EXTRAMURAL GRANTS

*Deciphering the cellular roles of LIS1 in the mature nervous system.* NINDS/NIH R21-NS123539-01A1 (PI – **D Smith**), 2022-2024 [\$398,798 total costs].

*Destabilization of axonal mRNAs by KHSRP controls axon regeneration.* NIH/NINDS R01-NS089633-06A1 (PI – **JL Twiss**), 2021-2026 [\$2,428,532 total costs].

*Dietary Supplements and Inflammation Phase-2 (Metabolic Mechanisms and Interventions for Healthy Aging in Females).* NIH-NIGMS P20-GM103641-08 (P – JA McQuail, Co-PI – **F Hollis**), 2021-2022 [\$137,937 total costs].

*Early Developmental Determinants and Pathways in Down syndrome.* NICHD K99-HD105980-01 (PI – **E Will; Mentor – J Roberts**), 2021-2026 [\$1,038,074 total costs].

*Early Indicators of Autism Risk in Down Syndrome.* NICHD 5F32 HD097877 (PI – **E Will; Mentor – J Roberts**), 2019-2021 [\$194,058 total costs].

*Evaluation of the South Carolina Parent Training and Information Center.* Contract with Family Connection of SC, Office of Special Education Programs (**Lead Evaluator – R Hock**), 2020-2025 [\$50,000 total to Hock].

*Evaluation of the underlying structure of adolescent social attention.* NIH/NIMH R15-MH124041 (PI – **Hudac**), 2019-2023 [\$82,283 subaward to Hudac].

*Familial genetic liability, risk for recurrence, and behavioral development in autism.* Baby Siblings Research Consortium Database Project (Co-I – **J Bradshaw**), 2021-2022 [\$22,500 total costs].

*Health Equity-Focused Adaptation of a Family Intervention for Challenging Behavior in Toddlers within the Part C Birth-to-Three System.* NIMH Child Intervention, Prevention, and Services (CHIPS) Research Training Institute Fellowship (PI – **SR Edmunds**), 2022-2023 [\$2,900 total costs].

*HEALTHY Brain and Child Development Study at UAB and UA.* NIDA (PI's – Peralta, D Yerby, S Newman, Newsom; Site-PI – **C Hudac**), 2021-2026 [\$189,298 subaward to Hudac].

*Heart Defined Attention in Infancy: Predicting Social Communication and ASD Symptomology.* NIH/NIMH K23 MH120476 (PI – **J Bradshaw; Mentor – J Roberts, J Richards, F Shic**), 2019-2024 [\$880,261 total cost].

*Homeostatic Reset as a New Therapeutic Paradigm for Slow Progression Diseases.* NIH/NIGMS R01-GM146257-01 (PI - Q Lu; Site-PI – **JL Twiss**), 2021-2026 [\$648,394 to Twiss].

*Improving the Part C Early Intervention Service Delivery System for Children with ASD: A Randomized Clinical Trial.* NIH/NIMH R01-MH122728-03, (PI – Carter; Co-I – **S Edmunds**), 2022-2025 [\$23,543 total costs to Edmunds].

*Infant Predictors of ADHD and ASD Symptomology.* NIH/NICHD 1F31-HD108920-01, (PI – Federico; Mentors – **J Bradshaw, J Roberts**), 2022-2025 [\$138,108 total costs].

*Information Competition Simulator.* UMD, ARLIS, DOD HQ003418D0005/HQ003421F0481, (PI Huhns, Co-I - **Narayanan**), 2022-2023 [\$99,880 total costs]

*Linking Brain and Behavior: A GRIN2B Biomarker.* GRIN2B Foundation (PI – **Hudac**), 2019-2021 [\$59,546 total costs]

## AWARDED EXTRAMURAL GRANTS

*Mitochondrial function in Gulf War Illness.* VA Research Development Award VISN 7 (PI – **F Hollis**), 2020-2022 [\$93,750 total costs to Hollis].

*Mitochondrial mechanisms and nutritional interventions for brain aging and memory.* NIH-NIGMS P20-GM103641 (PI – JA McQuail; Co-PI – **F Hollis**), 2020-2021 [\$50,000 total costs to Hollis].

*Molecular and cellular basis of altered neural development in Down syndrome.* South Carolina INBRE DRP, (PI – **K Welshhans**), 2022-2023 [\$73,659 total costs].

*Neural Basis of Individual Differences in Fear Extinction.* VA Merit Award I01 BX001374-05 (PI – M Wilson; Co-I – **D Mott**), 2019-2022 [\$1,046,039 total costs].

*Neural regulation of susceptibility to hyperarousal.* VA Merit I01 BX005661, (PI - SK Wood; Co-I – **F Hollis**), 2022-2026 [\$1,057,867 total costs].

*Neurobehavioral Determinants of Social Communication and Language Impairments in at-Risk Infants.* NIH/NIDCD R21 DC017252-01 (PI – **J Bradshaw**), 2019-2022 [\$426,936 total costs].

*Neuropsychological Profiles and Risk for Dementia-Related Disease in Mothers of Children with Autism Spectrum Disorder.* NIH/NIA 1F32-AG079615-01 (PI – Friedman; Mentor **J Klusek**), 2022-2025 [\$214,578 total costs].

*Pharmacological modulation of striatal physiology and repetitive behaviors by M4 PAMs.* NIH/NIMH R01-MH122545 (Co-I – **D Foster**), 2021-2025 [\$1,797,625 total costs].

*Pilot Study to Classify and Quantify Language Delay and Genetic Contributions in Phelan-McDermind Syndrome.* Transformative Seed Grant, Health Sciences Center at Prisma Health (PI's – Sarasua, Boccuto, **J Klusek**), 2021-2022 [\$20,000 total costs].

*Project IMPACT: Improving the Mental Health of Students with Emotional and Behavioral Disorders by Preparing School Counselors and Special Education Teachers to Collaborate on an Interdisciplinary Team.* USDOE 84.325K (PI – Limberg; Co-I – **K Wolfe**), 2019-2024 [\$1,102,217 total costs].

*Role of proteoglycan-mediated trans-axonal signaling in pre-target topographic sorting.* NIH/NINDS, R01-NS109197 (PI - **F Poulain**), 2019-2023 [\$1,955,935 total costs].

*Role of Stress Granule Protein Aggregation in Axon Regeneration – Diversity Supplement.* NIH/NINDS R01-NS117821-02S1 (PI – **JL Twiss**), 2021-2022 [\$75,738 total costs].

*Role of Stress Granule Protein Aggregation in Axon Regeneration.* NIH/NINDS R01-NS117821-01 (PI - **JL Twiss**), 2020-2025 [\$2,712,356 total costs].

*SCN2A Biomarkers of Attention.* FamiliesSCN2A Foundation (PI – **Hudac**), 2019-2021 [\$50,000 total costs].

*Stimuli-responsive polymers to modulate peptide efficacy in axon regeneration.* SC EPSCoR GEAR program 09-GE2020 (PI – J Larsen; Co-I – **JL Twiss**), 2021-2023 [~\$18,000 costs to Twiss].

*Supplement to Heart Defined Attention in Infancy: Predicting Social Communication and ASD Symptomology.* NIH/NIMH K23-MH120476 (PI – **J Bradshaw**), 2019-2024 [\$53,909 total costs].

## AWARDED EXTRAMURAL GRANTS

*Targeted manipulation of brain KYNA by genetic and pharmacological means: biochemical and functional effects.* NIH 5P50-MH103222 (PI – R Schwarcz, **Site PI – A Pocivavsek**), 2019-2024, [\$695,000 total costs to Pocivavsek].

*Targeting Axonal Mechanisms for Supporting Neural Repair & Function.* Dr. Miriam and Sheldon G. Adelson Medical Research Foundation (**PI – JL Twiss**), 2022-2025 [\$1,140,000 total costs].

*Targeting Axonal Mechanisms for Supporting Neural Repair & Function.* Dr. Miriam and Sheldon G. Adelson Medical Research Foundation (**PI - JL Twiss**), 2019-2022 [\$1,335,000 total costs].

*Targeting axonal stress granules to improve axon regeneration.* South Carolina Spinal Cord Injury Research Fund #2018 PD-01 (PI - PK Sahoo; **Mentor - JL Twiss**), 2020-2021 [\$67,500 total costs].

*Targeting Drp1-Fis1 interactions to mediate glucocorticoid-induced pathologies.* NIH/NIGMS 5P20-GM109091 (**PI – F Hollis**), 2022-2024 [\$300,000 total costs].

*Test of an Innovative, Scalable Support Program for Parents with a Young Child Recently Diagnosed with Autism Spectrum Disorder.* NIH/NICHHD R01-HD099295 (PI's – **Hock**, Feinberg; Co-I – **J Bradshaw**), 2020-2025 [\$3,341,195 total costs].

*The Development of Face-Processing Abilities in Infants: Structural and Functional Brain Changes During the First Year of Life.* NICHD K99-HD102566 (PI – S Conte; Mentor – **J Roberts**), 2021-2023 [\$216,802 total costs].

*The Embodied Emergence of Social Communication: Implications for Autism in Infancy.* James S. McDonnell Foundation (**PI – J Bradshaw**), 2021-2025 [\$250,000 total costs].

*The FMR1 Premutation Genotype and Age-Related Cognitive-Linguistic Decline – Administrative Supplement.* NICHD 3R21DC017804-02S1 (**PI – J Klusek**), 2020-2021 [\$244,237 total costs].

*Understanding the Diagnostic Experiences of Black Families.* Autism Science Foundation Undergraduate Fellowship, (PI Kaleb Phelps, **Mentor - J Bradshaw**), 2023 [\$4,000 total costs]

*Using LIS1 mutations to probe dynein regulatory mechanisms.* NINDS/NIH R21-NS125481-01 (**PI – D Smith**), 2022-2023 [\$401,128 total costs].

## GRANTS SUBMITTED – FUNDING ANTICIPATED

*Collaborative Autonomy in Uncertain Environments - Exploring Vistas Beyond Consensus.* NEEC, NSWC, DOD (PI - Sahoo, Co-I **Narayanan**), Proposed funding period 2023-2025 [\$448,751 total costs].

Program manager indicated intent to fund.

*Emergence, Stability, and Predictors of Anxiety in Fragile X Syndrome.* NIH/NIMH 2R01-MH107573-06 (PI **A Hogan**, Co-Is **J Roberts**, Hills, Fairchild, Kerns), Proposed funding period 2023-2028[\$3,611,850 total costs]

PRIORITY SCORE = 33 (23%); NIMH indicated intent to fund

*Information Competition Simulator.* UMD, ARLIS, DOD HQ003418D0005/HQ003421F0481 (PI Huhns, Co-I - **Narayanan**), Anticipated funding period 2023-2024 based upon successful progress, [\$99,880 total costs]

*Molecular and cellular basis of altered neural development in Down syndrome.* South Carolina INBRE DRP (PI – **K Welshhans**), Anticipated funding period 2023-2024 based upon successful progress, [\$73,659 total costs].

*Reciprocity of Social Connection and Well-Being: Convergence of Temporal and Neural Underpinnings of Adolescent Social Connection Quality, Quantity, and Need.* NIH/NICHHD R01-HD107593-01A1 (PI - **C Hudac**, M Xia), Proposed funding period 2023-2028, [\$3,381,246 total costs]

PRIORITY SCORE = 30 (14%); NICHD indicated intent to fund

*Regulating axon guidance through local translation at adhesions.* NIH/NINDS R01-NS125146-01A1, (PI – **K Welshhans**) Proposed funding period 2023-2028, [\$2,275,790 total costs]

PRIORITY SCORE = 36 (18%); NINDS indicated intent to fund

*The Role of Autonomic Regulation of Attention in the Emergence of ASD.* NIMH (PI – **Bradshaw**, Co-Is – R. Dail, **C. O'Reilly**, J. Richards, **J. Roberts**) 2023-2028 [\$3,732,820 total costs]

PRIORITY SCORE = 10 (1%); NIHM indicated intent to fund.

*Cholinergic regulation of amygdalar circuits in emotional memory.* NIH resubmission (PI – **D Mott**, Co-I – **C O'Reilly**), proposed funding period 2023-2028 [\$3,133,045 proposed total costs].

PRIORITY SCORE = 40 (4%)

## GRANTS SUBMITTED – PENDING REVIEW

*Acquisition of a Mobile Observation System for Neurodevelopment Research.* NSF Major Research Instrumentation, (PI - **J Bradshaw**, CoPI's **Ton, Sur, J Roberts, C O'Reilly**), Proposed funding period 2023-2025 [\$1,400,000 proposed total costs].

*Bioethics Supplement to Heart Defined Attention in Infancy: Predicting Social Communication and ASD Symptomology.* NIH/NIMH K23-MH120476 (PI – **J Bradshaw**), 2023-2024 [\$200,000 proposed total costs].

*Data-Integrated Systems Theory for High-Dimensional Complex Dynamic Networks.* AFOSR DOD (PI: **V Narayanan**), Proposed funding period 2023-2025 [\$599,990 proposed total costs].

*Diabetes-induced O-GlcNAcylation Worsens Neurovascular Injury Post-stroke.* NIH/NHLBI R01-HL169223 (PI - **McCarthy, Co-I F Hollis**), Proposed funding 2023, 2028, [\$1,951,930 proposed total costs]

*Elucidation of the role for brain mitochondrial dysfunction in the intersection of pregnancy and stress,* NIH/NICHD F31 HD111281-01 (PI E - **Gorman-Sandler; Mentor - F Hollis**) Proposed funding period 2023-2024, [\$93,104 proposed total costs].

*Evaluating a Family Training and Support Service for Children and Youth with Intellectual and Developmental Disabilities.* Spencer Foundation Research-Practice Partnership Grant (PI - **K Wolfe, R Hock, Turner**), Proposed funding period 2022 [\$399,057 proposed total costs].

*Foundation for Child Development.* Young Scholars Program (PI - **S Edmunds**), Proposed funding period 2023-2025 [

*Improving awareness of women with hypertension: ROAR (rural, obese, at-risk).* NIH U54-HL169191 (**Co-I – F Hollis**), Proposed funding period 2023-2028, [\$7,482,882 proposed total cost].

*Patient-Centered Outcomes Research Institute A Patient-Centered Approach to Early Intervention for Autism.* (PIs – **J Bradshaw, K Wolfe**), Proposed funding period 2023-2025, [\$6,526,886 proposed total cost].

*Role of proteoglycan-mediated trans-axonal signaling for pre-target topographic sorting.* NIH/NINDS Competing Renewal R01-NS109197-06, (PI - **Poulain**) Proposed funding period 2022-2024 [\$407,545 proposed total costs].

*The postpartum brain mitochondrion: role in behavioral effects of gestational stress.* NIH/NIMH R01-MH134233-01 (PI - **F Hollis**), Proposed funding period 2023-2028 [\$2,894,628 proposed total costs].

*Validating an animal model of female veteran risk factors for postpartum depression.* VA BLRD Pilot 1 I21 BX006218-01 (PI - **F Hollis**), Proposed funding period 2023-2025 [\$349,866 proposed total costs].



## GRANTS SUBMITTED – NOT FUNDED

**For discussed NIH grants priority scores are provided, otherwise the proposal was not discussed. For foundation grants and some funding agencies no numerical score or no scoring at all is provided.**

*A new cross-college model for shared research space at the University of South Carolina.* NIH C06-OD034126-01. (PI – **JL Twiss**), proposed funding period 2022-2026 [\$7,636,874 proposed total costs].

*Post-translational control of RNA stability in regenerating axons.* NIH/NINDS R21-NS133855-01 (PI – **JL Twiss**), Proposed funding period 2023-2025 [\$451,157 proposed total costs].  
PRIORITY SCORE = 37 (21%)

*Accelerating Nerve Regeneration through Engineered Stress Granule Disassembly Agents.* NIH/NINDS R61 NS131684-01 (PI – **JL Twiss**), proposed funding period 2023-2026 [\$1,094,302 proposed total costs].  
PRIORITY SCORE = 40 (no % given)

*Biobehavioral synchrony in autism spectrum disorder.* NICHD/NIH F31 application (PI – C Moser; **Primary Sponsor – J Klusek**), proposed funding period 2021-2024 [\$130,000 proposed total costs].  
PRIORITY SCORE = 36 (25%)

*Cholinergic regulation of amygdalar circuits in emotional memory.* NIH (PI – **D Mott**, Co-I – **C O'Reilly**), proposed funding period 2022-2026 [\$3,133,045 proposed total costs].  
PRIORITY SCORE = 40 (no % given)

*Cognitive, behavioral, and neural indicators of MCI risk in FMRI Premutation carrier women.* NIH/NIA R01 AG079287-01A1 (PI – **J Klusek**), proposed funding period 2022-2027 [\$3,097,819 proposed total costs].

*Effect of OCND5-associated CSNK2A1 mutations on neuronal protein synthesis.* SFARI (PI's – PK Sahoo, **K Welshhans**), proposed funding period 2022-2024 [\$950,695 proposed total costs].  
NO SCORE PROVIDED

*EFRI BRAID Preliminary Proposal: Biologically-inspired multiscale architecture (BIMA): Theory, algorithms, and neuromorphic implementation.* NSF (PI's – **V Narayanan**, Q Zhang, R Zand; Co-I – **C O'Reilly**), proposed funding period 2022-2026 [\$2,000,000 proposed total costs].

*Emotion Reactivity as a Neurocognitive Mechanism Underlying Mental Health in Autistic Adolescents and Adults.* NICHD R01 HD104655-01A1 (PI's – S White, Kana; Co-I – **C Hudac**), proposed funding 2023-2028 [\$3,686,688 proposed total costs].

*Estradiol Modulation of Neural Circuits Controlling Generalized Fear Learning.* NIH/NIMH R01 (PI's – **D Mott**, AM Jasnow), proposed funding period 2022-2027 [\$2,424,930 proposed total costs].

*Improving Immunization Information System Implementation in Community Pharmacies* (PIs – T Hastings, H Brandt, S Westrick, BF Cartmell, **R Hock**), proposed funding period 2022-2024 [\$389,258 proposed total costs; Resubmission].

*Integrative analysis framework for multiscale analysis of neuroscience data.* AFOSR (PI – **C O'Reilly**), proposed funding period 2022-2026 [\$620,000 proposed total costs].

## GRANTS SUBMITTED – NOT FUNDED

*Intranasal insulin restores glutamate-mediated plasticity in a hippocampal-specific insulin resistance model of Alzheimer's Disease.* NIH/NIA R01 (**Co-I – D Mott**), proposed funding period 2022-2027 [\$1,981,000 proposed total costs].

*NRT-AI: STRIDE - Students Trained in Interdisciplinary and Trustworthy AI for Translational Research and Adoption of AI in Diverse Disciplines.* NSF (PI – A Sheth; **Co-I – J Roberts**), proposed funding period 2022-2027 [\$3,000,000 proposed total costs].

*NSF AI-Institute: CANDELAS - Continuously AmplifyiNg MultimoDalSocio-communication Engagement for Learners with Autism At Scale.* NSF (PI – A Sheth; **Co-I's – C O'Reilly, J Roberts**), proposed funding period 2023-2027 [\$20,000,000 proposed total costs].

*Objective neurobiological markers of attention bias in ASD.* Simons Foundation Autism Research Initiate (**PI's – C Hudac, A Hogan**), proposed funding 2022-2024 [\$500,000 proposed total costs].  
**NO SCORE PROVIDED.**

*Person Development to Improve Service and Results for Children with Disabilities.* Office of Special Education Programs (PI's – S Adolf, L Fitton; **Co-I – A Hogan**), 2022-2026 [\$1,092,621 proposed total costs].

*PoCo-Female Stress.* German Scholars Organization (**Co-I – F Hollis**), proposed funding period 2022-2024 [~\$83,000 proposed total costs].  
**NO SCORE PROVIDED.**

*Elucidation of the role for brain mitochondrial dysfunction in the intersection of pregnancy and stress,* NIH/NICHD F31 HD111281-01 (PI E Gorman-Sandler; **Mentor – F Hollis**), Proposed funding period 2023-2024 [\$93,104 proposed total costs]  
**PRIORITY SCORE = 39 (38%)**

*Predocctoral Big Data Analytics Training for Infectious Disease Research.* NIH (PI – J Zhang; **Co-I – J Roberts**), proposed funding period 2022-2027 [\$2,347,627 proposed total costs].

*Representation of hedonic valence in a naturalistic context: fMRI mapping across the adult lifespan.* James S. McDonnell Foundation (**PI – C O'Reilly**), proposed funding period 2022-2025 [\$2,250,000 proposed total costs].

*Reverse the progression of Alzheimer's disease through brain targeted delivery of nano-antibody.* NIH/NIA R01 (**Co-I – D Mott**), proposed funding period 2022-2027 [\$1,914,000 proposed total costs].

*Structural and functional consequences of DSCAM overexpression in Down syndrome.* Brain Research Foundation (**PI – K Welshhans**), proposed funding period 2022-2024 [\$80,000 proposed total costs]. .  
**NO SCORE PROVIDED.**

*Validating an animal model of female veteran risk factors for postpartum depression.* VA BLRD Pilot 1 I21 BX006218-01 (**PI – F Hollis**), Proposed funding period 2023-2025 [\$349,866 proposed total costs]  
**PRORITY SCORE 249**

*The consequences of prenatal mitochondrial disruption on adolescent and early adult behavior in mice.* NIH-NIEHS 1 R21 ES034583-01 (**PI – F Hollis**), proposed funding period 2022-2024 [\$250,000 proposed total costs].

## GRANTS SUBMITTED – NOT FUNDED

*Training responsive researchers and improving language & literacy.* U.S. Department of Education (PI's – S Adolf, L Fitton; **Co-I – J Klusek**), 2023-2027 [\$1,092,621 proposed total funding].

*Zero-lag homotopic connectivity: Investigation as a biomarker in ASD.* ASPIRE (PI – **C O'Reilly**), proposed funding period 2022-2023 [\$15,000 proposed total costs].

*Autonomic and Sensory Dysfunctions in Autism Spectrum Disorder: Development, Mechanisms and Consequences.* NIH P50 HD10978 (PI's – **J Roberts, JT Twiss**; Co-I's – **J Bradshaw, R Hock, A Hogan, S Lizarraga, D Mott, C O'Reilly, K Welshhans**), proposed funding period 2022 – 2027, [\$11,073,735 proposed total costs].

*Biobehavioral Trajectories, Predictors, and Consequences of Inhibitory Control in Children with Fragile X Syndrome.* NIH (PI – E Hunt; **Mentor – J Roberts**), proposed funding period 2021 – 2024, [\$131,330 proposed total costs].

*Carolina Autism Parent Support: A Tiered Model of Mental Health and Behavioral Support.* Duke Endowment Fund (PI: **A Hogan**; **Co-I – K Wolfe, J Bradshaw, K Hills, & R Hock**), proposed funding period 2021 – 2024, [\$337,650 proposed total costs].

**INVITED FOR SITE VISIT BUT NOT FUNDED.**

*Epigenetic & transcriptional mechanisms in intellectual disability & autism in ASH1L disorder.* Jerome Lejeune Foundation (PI – **S Lizarraga**), proposed funding period 2021 – 2023, [\$96,716 proposed total costs].

**NO SCORE PROVIDED.**

*Epigenetic and transcriptional mechanisms in autism spectrum disorders.* Eagles Autism Foundation Award (PI – **S Lizarraga**; Co-PI - Liu), proposed funding period 2021 – 2023, [\$400,000 proposed total costs].

**NO SCORE PROVIDED.**

*Neural Wiring for Cognition is Mediated by Local Translation in Axons.* Whitehall Foundation (PI - **K Welshhans**), proposed funding period 2021 – 2024, [\$225,000 proposed total costs].

**NO SCORE PROVIDED.**

*Post-translational modifications of RNA storage proteins determine when mRNAs are translated in axons.* Wings for Life Foundation (PI - I Dalla Costa; **Mentor - JL Twiss**), proposed funding period 2021-2023, [\$79,421 proposed total costs].

**NO SCORE PROVIDED.**

*The role of mitochondrial function in a rodent model of stress-induced postpartum depression.* Pew Biomedical Scholar (PI – **F Hollis**), proposed funding period 2022 – 2026, [\$300,000 proposed total costs].

**NO SCORE PROVIDED.**

*Research Program for Post-transcriptional Regulation of Axon Growth.* NIH/NINDS R35-NS116819-01 (PI: **JL Twiss**), proposed funding period 2020-2028 [\$6,410,360 proposed total costs].

**PRIORITY SCORE = 43 (no % given)**

## GRANTS SUBMITTED – NOT FUNDED

*Autonomic and Sensory Dysfunction in FMRI Conditions: Development, Mechanisms and Consequences.* NIH/NICHD 1P50-HD104434-01 (**multi-PIs - J Roberts, JL Twiss; Co-I's – A Hogan, J Klusek, D Mott, F Hollis, S Lizarraga**), proposed funding period 2020-2025. [\$9,673,272 proposed total costs].

*Peptide strategies to increase axon regeneration by targeting stress granule function.* NIH/NINDS INGNITE 1 R61-NS113050-01A1 (**PI – JL Twiss**), proposed funding period 2020-2023 [\$1,134,638 proposed total costs].

**PRIORITY SCORE = 45 (no % given)**

*Destabilization of axonal mRNAs by KHSRP controls axon regeneration.* NIH/NINDS competing renewal R01 application R01-NS089633-06 (**PI – JL Twiss**), proposed funding period 2020-2025 [\$3,131,552 proposed total costs].

**PRIORITY SCORE = 40 (27%)**

*Sex differences in Amyloid-mediated neurodegeneration and stress granule aggregation.* NIH/NIA R21 application, proposed funding period 2020-2022 (**PI - AN Kar, UofSC; JL Twiss is co-I**) [\$409,000 proposed total costs].

*Susceptibility of the developing brain to inflammation in autism etiology.* Chan-Zuckerberg Initiative (**PI – SB Lizarraga**), proposed funding period 2020-2022 [\$279,294 proposed total costs].

**NO SCORE PROVIDED.**

*Epigenetic regulation of neurotrophin signaling in autism spectrum disorders.* SFARI Pilot Grant Program (**PI – SB Lizarraga**), proposed funding period 2020-2022 [\$300,000 proposed total cost].

**NO SCORE PROVIDED..**

*Epigenetic regulation of neurotrophin signaling in autism spectrum disorders.* Brain Research Foundation Seed Grant Program (**PI – SB Lizarraga**), proposed funding period 2020-2022 [\$75,000 proposed total costs].

**NO SCORE PROVIDED.**

*Postpartum Powerhouses: the role of brain mitochondrial function in postpartum depression.* Brain & Behavior Research Foundation NARSAD Young Investigator application (**PI – F Hollis**), proposed funding period 2021-2023. [\$70,000 proposed total costs].

**NO SCORE PROVIDED.**

## APPENDIX E: FY22 Publications from CAN Core Faculty

### Since establishment of CAN

Publications, preprints, and book chapters	IF
Abbeduto, L., <b>Klusek, J.</b> , Lounds Taylor, J., Sparapani, N., & Thurman, A. J. (2021). Concurrent associations between expressive language ability and independence in adolescents and adults with fragile X syndrome. <i>Brain Sciences</i> , <i>11</i> , 1179.	3.2
Agrawal, M., & <b>Welshhans, K.</b> (2021). Local translation across neural development: a focus on radial glia cells, axons, and synaptogenesis. <i>Frontiers in Molecular Neuroscience</i> , <i>14</i> , 717170.	6.3
Anzalone, C., Luedke, J. C., <b>Green, J. J.</b> , & Decker, S. L. (2022). QEEG coherence patterns related to mathematics ability in children. <i>Applied Neuropsychology: Child</i> , <i>11</i> (3), 328-338.	1.4
Bangert, K., Moser, C., Friedman, L., & <b>Klusek, J.</b> (2021, August). Family as a Context for Child Development: Mothers with the FMR1 Premutation and Their Children with Fragile X Syndrome. <i>Seminars in Speech and Language Vol. 42</i> , 277-286).	1.5
Bangert, K., Scaler-Scott, K., Adams, C., Kisenwether, J. A., Giuffre, L., Reed, J., Thurman, A. J., Abbeduto, L., & <b>Klusek, J.</b> (2022). Cluttering in the speech of males with fragile X syndrome. <i>Journal of Speech, Language, and Hearing Research</i> , <i>65</i> , 254–269.	1.9
Bayet, L., Perdue, K. L., Behrendt, H. F., <b>Richards, J. E.</b> , Westerlund, A., Cataldo, J. K., & Nelson III, C. A. (2021). Neural responses to happy, fearful and angry faces of varying identities in 5-and 7-month-old infants. <i>Developmental Cognitive Neuroscience</i> , <i>47</i> , 100882.	4.9
Beckers, A., Masin, L., Van Dyck, A., Bergmans, S., Vanhunsel, S., Zhang, A., Verreet, T., <b>Poulain, F. E.</b> , Farrow, K., & Moons, L. (2023). Optic nerve injury-induced regeneration in the adult zebrafish is accompanied by spatiotemporal changes in mitochondrial dynamics. <i>Neural Regeneration Research</i> , <i>18</i> (1), 219-225.	5.1
Bills, S. E., Johnston, J. D., Shi, D., & <b>Bradshaw, J.</b> (2021). Social-environmental moderators of neurodevelopmental outcomes in youth born preterm: A systematic review. <i>Child Neuropsychology</i> , <i>27</i> (3), 351-370.	2.4
Bills, S. E., Schatz, J., Hunt, E., Varanasi, S., Johnston, J., & <b>Bradshaw, J.</b> (2021). Neurodevelopmental Outcomes in Preterm Children with Sickle Cell Disease. <i>Journal of the International Neuropsychological Society</i> , <i>28</i> (10), 1039-1049.	3.1
Black, C. J., <b>Hogan, A. L.</b> , Smith, K. D., & <b>Roberts, J. E.</b> (2021). Early behavioral and physiological markers of social anxiety in infants with fragile X syndrome. <i>Journal of Neurodevelopmental Disorders</i> , <i>13</i> (1), 1–9.	1.5
<b>Bradshaw, J.</b> , & Abney, D. H. (2021). Infant physiological activity and the early emergence of social communication. <i>Developmental psychobiology</i> , <i>63</i> (7), e22145.	3.0
<b>Bradshaw, J.</b> , Gillespie, S., McCracken, C., King, B. H., McCracken, J. T., Johnson, C. R., ... & Scahill, L. (2021). Predictors of caregiver strain for parents of children with autism spectrum disorder. <i>Journal of Autism and Developmental Disorders</i> , <i>51</i> , 3039-3049.	3.1

- Bradshaw, J.**, McCracken, C., Pileggi, M., Brane, N., Delehanty, A., Day, T., Federico, A., Klaiman, C., Saulnier, C., Klin, A., & Wetherby, A. (2021). Early social communication development in infants with autism spectrum disorder. *Child Development*, 92(6), 2224–2234. 5.0
- Bradshaw, J.**, Schwichtenberg, A. J., & Iverson, J. M. (2022). Capturing the complexity of autism: Applying a developmental cascades framework. *Child Development Perspectives*, 16(1), 18–26. 3.9
- Bradshaw, J.**, Shi, D., Federico, A., Klaiman, C., & Saulnier, C. (2022). The pull-to-sit task: Examining infant postural development in autism spectrum disorder. *The Journal of Pediatrics*, S0022-3476(22)00869-1. doi: 10.1016/j.jpeds.2022.09.047. 4.4
- Bradshaw, J.**, Shi, D., Hendrix, C. L., Saulnier, C., & Klaiman, C. (2022). Neonatal neurobehavior in infants with autism spectrum disorder. *Developmental Medicine & Child Neurology*, 64(5), 600–607. 5.4
- Bradshaw, J.**, Trumbull, A., Stapel-Wax, J., Gillespie, S., George, N., Saulnier, C., Klaiman, C., Woods, J., Call, N., Klin, A., & Wetherby, A. (2020). Factors Associated with Enrollment into a Clinical Trial of Caregiver-Implemented Intervention for Infants at Risk for Autism Spectrum Disorder. *Autism* 24(7):1874-1884. doi: 10.1177/1362361320928829. 6.7
- Bradshaw, J., Wolfe, K., Hock, R., & Scopano, L.** (2022). Advances in Supporting Parents in Interventions for Autism Spectrum Disorder. *Pediatric Clinics*, 69(4), 645-656. 2.1
- Bratsch-Prince, J. X., Warren III, J. W., Jones, G. C., McDonald, A. J., & **Mott, D. D.** (2023). Acetylcholine engages distinct amygdala microcircuits to gate internal theta rhythm. *bioRxiv*, 2023-02. n/a
- Buck, S. A., Baratta, A. M., & **Pocivavsek, A.** (2020). Exposure to elevated embryonic kynurenine in rats: sex-dependent learning and memory impairments in adult offspring. *Neurobiology of Learning and Memory*, 174, 107282. 3.2
- Bulgarelli, C., de Klerk, C. C. J. M., **Richards, J. E.**, Southgate, V, Hamilton, A, Blasi, A. (2020). The developmental trajectory of fronto-temporoparietal connectivity as a proxy of the default mode network: A longitudinal fNIRS investigation. *Hum Brain Mapp.*, 41, 2717– 2740. 5.0
- Cariveau, T., McCracken, C.E., **Bradshaw, J.** et al. (2021) Gender Differences in Treatment-Seeking Youth with Autism Spectrum Disorder. *Child and Family Studies*. 30, 784–792 1.3
- Carlson, R. G., **Hock, R.**, George, M., Kumpiene, G., Yell, M., McCartney, E. D., Riddle, D., & Weist, M. D. (2020). Relational factors influencing parents’ engagement in special education for high school youth with emotional/behavioral problems. *Behavioral Disorders*, 45(2), 103-116. 3.2
- Cheon, S. H., Culver, A. M., Ritchie, F. D., Vacharasin, J. M., McCord, M., Papendorp, C. M., Chukwurah, E., Smith, A. J., Cowen, M. H., Moreland, T. A., Ghate, P. S., Davis, S. D., Liu, J. S., & **Lizarraga, S. B.** (2022). Counteracting epigenetic mechanisms regulate the structural development of neuronal circuitry in human neurons. *Molecular Psychiatry*, 27(4), 2291–2303. 13.4
- Chezan, L. C., **Drasgow, E.**, & Grybos, M. E. (2020). Conversation skills and self-initiated interactions in young adults with autism and intellectual disability. *Research in Autism Spectrum Disorders*. 75, 101554. 2.9



Publications, preprints, and book chapters	IF
Chezan, L. C., Liu, J., Cholewicki, J. M., <b>Drasgow, E.</b> , Ding, R., & Warman, A. (2022). A psychometric evaluation of the quality of life for children with autism spectrum disorder scale. <i>Journal of Autism and Developmental Disorders</i> , 52(4), 1536–1552.	3.1
Chezan, L. C., Liu, J., <b>Drasgow, E.</b> , Ding, R., & Magana, A. (2022). The Quality of Life for Children with Autism Spectrum Disorder Scale: Factor Analysis, MIMIC Modeling, and Cut-Off Score Analysis. <i>Journal of Autism and Developmental Disorders</i> , 1–16.	3.1
Chezan, L.C., McCammon, M.N., <b>Drasgow, E., &amp; Wolfe, K.</b> (2020). The ecological validity of research studies on function-based interventions in schools for children with autism spectrum disorder. <i>Behavior Modification</i> , 46(1), 202-229.	2.0
Chezan, L.C., McCammon, M.N., <b>Wolfe, K.</b> , Drasgow, E., & Tabacu, L.M. (2022). Teachers' familiarity, confidence, training, and use of problem behavior interventions for learners with Autism Spectrum Disorder. <i>Journal of Developmental and Physical Disabilities</i> , 4, 1-25.	1.0
Coll-Tané, M., Gong, N., Belfer, S. J., van Renssen, L., Kurtz-Nelson, E. C., Szuperak, M., Eidhof, I., van Reijmersdal, B., Terwindt, I., Durkin, J., Verheij, M. M. M., Kim, C. N., <b>Hudac, C. M.</b> , Nowakowski, T. J., Bernier, R. A., Pillen, S., Earl, R. K., Eichler, E. E., Kleefstra, T., Kayser, M. S., & Schenck, A. (2021). CHD8/CHD7/Kismet link blood-brain barrier glia and serotonin to ASD-associated sleep deficits. <i>Scientific Advances</i> , 7(23), eabe2626.	13.5
Conte, S., & <b>Richards, J. E.</b> (2021). The influence of the head model conductor on the source localization of auditory evoked potentials. <i>Brain Topography</i> , 34, 793-812.	4.3
Conte, S., & <b>Richards, J.E.</b> (2022). Cortical source analysis of event-related potentials: A developmental approach. <i>Developmental Cognitive Neuroscience</i> , 54.	4.9
Conte, S., & <b>Richards, J.E.</b> (2021). Attention in early development. <u>Oxford Research Encyclopedia of Psychology</u> .	n/a
Conte, S., <b>Richards, J. E.</b> , Guy, M. W., Xie, W., & <b>Roberts, J. E.</b> (2020). Face-sensitive brain responses in the first year of life. <i>NeuroImage</i> , 211, 116602.	7.4
Crawford, H., Abbeduto, L., Hall, S. S., Hardiman, R., Hessel, D., <b>Roberts, J. E.</b> , Scerif, G., Stanfield, A. C., Turk, J., & Oliver, C. (2020). Fragile X syndrome: an overview of cause, characteristics, assessment and management. <i>Paediatrics and Child Health</i> , 30(11), 400–403.	2.0
Dalla Costa, I., Buchanan, C. N., Zdradzinski, M. D., <b>Sahoo, P. K.</b> , Smith, T. P., Thames, E., Kar, A.N. & <b>Twiss, J. L.</b> (2021). The functional organization of axonal mRNA transport and translation. <i>Nature Reviews Neuroscience</i> , 22(2), 77-91.	38.8
Doron-Mandel, E., I. Koppel, O. Abraham, I. Rishal, T.P. Smith, P.K. Sahoo, J. Kadlec, J.A. Osés-Prieto, R. Kawaguchi, S. Alber, P. Di-Matteo, A. Di-Pizio, D-A. Song, N. Okladnikov, G.Coppola, A.L. Burlingame, P. Jungwirth, <b>J.L. Twiss</b> , and M. Fainzilber. (2021). The GAR Domain Drives Subcellular Localization of the Growth Controlling RNA Binding Protein Nucleolin. <i>EMBO J</i> 40, e107158.	13.8
Earl, R. K., Ward, T., Gerds, J., Eichler, E. E., Bernier, R. A., & <b>Hudac, C. M.</b> (2021). Sleep problems in children with ASD and gene disrupting mutations. <i>Journal of Genetic Psychology</i> , 182(5), 317–334.	0.9



Publications, preprints, and book chapters	IF
<b>Edmunds, S. R.</b> , Fogler, J., Braverman, Y., Gilbert, R., & Faja, S. (2023). Resting frontal alpha asymmetry as a predictor of executive and affective functioning in children with neurodevelopmental differences. <i>Frontiers in Psychology</i> , <i>13</i> , 1065598.	4.2
<b>Edmunds, S. R.</b> , Frost, K. M., Sheldrick, R. C., Bravo, A., Straiton, D., Pickard, K., Grim, V., Drahota, A., Kuhn, J., Azad, G., Pomales Ramos, A., Ingersoll, B., Wainer, A., Ibañez, L. V., Stone, W. L., Carter, A., & Broder-Fingert, S. (2022). A method for defining the CORE of a psychosocial intervention to guide adaptation in practice: Reciprocal Imitation Teaching as a case example. <i>Autism</i> , <i>26</i> (3), 601–614.	6.7
<b>Edmunds, S. R.</b> , MacNaughton, G., Rueda, M. R., Combita, L. M., & Faja, S. (2022). Beyond group differences: Exploring the preliminary signals of target engagement for an executive functioning training for autistic children. <i>Autism Research</i> , <i>15</i> (7), 1261-1273.	3.7
Escolar, M., <b>Bradshaw, J.</b> , & the MPS III Workgroup (2020). Development of a clinical algorithm for the early diagnosis of mucopolysaccharidosis III. <i>Journal of Inborn Errors of Metabolism and Screening</i> . DOI: 10.1590/2326-4594-JIEMS-2020-0002.	0.1
Ezell, J., <b>Hogan, A.</b> , Fairchild, A., <b>Hills, K.</b> , <b>Klusek, J.</b> , Abbeduto, L., <b>Roberts, J. E.</b> (2019). Prevalence and predictors of anxiety disorders in adolescent and adult males with autism spectrum disorder and fragile X syndrome. <i>Journal of Autism and Developmental Disorders</i> , <i>49</i> , 1131-1141.	3.0
Ezell, J., <b>Hogan, A.</b> , Will, E. A., Smith, K., & <b>Roberts, J.</b> (2021). Cardiac Startle Response and Clinical Outcomes in Preschool Children with Fragile X Syndrome and Autism Spectrum Disorder. <i>Frontiers in Psychiatry</i> , <i>12</i> , 729127.	3.1
Federico, A., Shi, D., & <b>Bradshaw, J.</b> (2021). Agreement between parental report and clinician observation of infant developmental skills. <i>Frontiers in Psychology</i> , <i>12</i> doi.org/10.3389/fpsyg.2021.734341	4.2
Franke, K. B., <b>Hills, K.</b> , Huebner, E. S., & Flory, K. (2019). Life Satisfaction in Adolescents with Autism Spectrum Disorder. <i>Journal of Autism and Developmental Disorders</i> , <i>49</i> (3), 1205-1218.	3.0
Fu, X. & <b>Richards, J.E.</b> (2021). Investigating developmental changes in scalp-to-cortex correspondence using diffuse optical tomography sensitivity in infancy. <i>Neurophotonics</i> . <i>8</i> (3), 035003.	3.6
Fu, X., & <b>Richards, J. E.</b> (2021). devfOLD: a toolbox for designing age-specific fNIRS channel placement. <i>Neurophotonics</i> , <i>8</i> (4), 045003-045003.	3.6
Fu, X., & <b>Richards, J.E.</b> (2022). Age-related changes in diffuse optical tomography sensitivity profiles from childhood to adulthood. <i>J. Biomed. Opt.</i> <i>27</i> (8), 083004.	3.8
Fu, X., & <b>Richards, J.E.</b> (2022). Evaluating Head Models for Cortical Source Localization of the Face-Sensitive N290 Component in Infants. <i>Brain Topography</i> , <i>35</i> , 398-415.	4.3
Gao, C., <b>Green, J. J.</b> , Yang, X., Oh, S., Kim, J., & Shinkareva, S. V. (2022). Audiovisual integration in the human brain: a coordinate-based meta-analysis. <i>bioRxiv</i> , 2022-07.	n/a

Publications, preprints, and book chapters	IF
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<b>Roberts, J. E.</b> , Crawford, H., Will, E. A., <b>Hogan, A. L.</b> , McQuillin, S., Tonnsen, B. L., O’Conner, S., Roberts, D.A., & Brewes, A. M. (2019). Infant Social Avoidance Predicts Autism but Not Anxiety in Fragile X Syndrome. <i>Frontiers in Psychiatry</i> , 10, 199.	3.1

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Romano N., Catalani A., Lattante S., Belardo A., Proietti S., Bertini L., Silvestri F., Catalani E., Cervia D., Zolla L., Sabatelli M., <b>Welshhans K.</b> , & Ceci M. (2020) ALS skin fibroblasts reveal oxidative stress and ERK1/2-mediated cytoplasmic localization of TDP-43. <i>Cellular Signaling</i> . 70, 109591.	4.3
Romano N., Di Giacomo B., Nobile V., Borreca A., Willems D., Tilesi F., Catalani E., Agrawal M., <b>Welshhans K.</b> , Ricciardi S., Cervia D., and Ceci M. (2022) Ribosomal RACK1 regulates dendritic arborization by repressing FMRP activity. <i>International Journal of Molecular Sciences</i> , 23(19), 11857.	6.2
Rovane, A. K., <b>Hock, R. M.</b> , & January, S. A. A. (2020). Adherence to behavioral treatments and parent stress in families of children with ASD. <i>Research in Autism Spectrum Disorders</i> , 77, 101609.	2.9
Rovane, A., & <b>Hock, R.</b> (2022). <u>Mindful Parenting for Parents of Children with ASD</u> . Curriculum and parent workbook.	n/a
<b>Sahoo P. K.</b> , Kar A.N., Samra N., Terenzio M., Patel P., Lee S.J., Miller S., Thames E., Jones B., Kawaguchi R., Coppola G., Fainzilber M., <b>Twiss J.L.</b> (2020). A translational switch drives axonal stress granule disassembly through synthesis of Casein Kinase 2a. <i>Current Biology</i> 30, 4882- 4895.e6.	10.8
Sahoo, P. K., & Twiss, J. L. (2023). Profiling Locally Translated mRNAs in Regenerating Axons. <u>In Axon Regeneration: Methods and Protocols</u> (pp. 145-161). New York, NY: Springer US.	n/a
Sansalone, L., Bratsch-Prince, J., Tang, S., Captain, B., <b>Mott, D. D.</b> , & Raymo, F. M. (2019). Photopotential of the GABAA receptor with caged diazepam. <i>Proceedings of the National Academy of Sciences</i> , 116(42), 21176-21184.	12.8
Sena R., <b>Twiss J.L.</b> , Gardiner A.S., Dell’Orco M., Linsenhardt D.N., Perrone-Bizzozero N. (2021). The RNA- binding protein HuD regulates alternative splicing and alternative polyadenylation in the mouse neocortex. <i>Molecules</i> 6:2836. <a href="https://doi.org/10.3390/molecules26102836">https://doi: 10.3390/molecules26102836</a> .	4.9
Smith, K., <b>Hogan, A. L.</b> , Will, E., & <b>Roberts, J. E.</b> (2021). Attention Bias and Prodromal Anxiety Symptoms in Toddlers With Fragile X Syndrome and Down Syndrome. <i>American Journal on Intellectual and Developmental Disabilities</i> , 126(2), 167–181. <a href="https://doi.org/10.1352/1944-7558-126.2.167">https://doi.org/10.1352/1944-7558-126.2.167</a>	2.3
Smith, P. C., Phillips, D. J., <b>Pocivavsek, A.</b> , Byrd, C. A., Viechweg, S. S., Hampton, B., & Mong, J. A. (2022). Estradiol influences adenosinergic signaling and nonrapid eye movement sleep need in adult female rats. <i>Sleep</i> , 45(3), zsab225.	5.1
Smith, T., P.K. Sahoo, A.N. Kar, and <b>J.L. Twiss.</b> (2020). Axon-intrinsic mechanisms supporting axon regeneration. <i>Brain Research</i> , 1740, 146864.	3.3
Spead, O., & <b>Poulain, F. E.</b> (2020). Activity-dependent refinement of nasal retinal projections drives topographic map sharpening in the teleost visual system. <i>bioRxiv</i> , 2020-12.	n/a
Spead, O., & <b>Poulain, F. E.</b> (2020). Trans-axonal signaling in neural circuit wiring. <i>International Journal of Molecular Sciences</i> , 21(14), 5170.	6.2

- Spead, O., Moreland, T., Weaver, C. J., Dalla Costa, I., Hegarty, B., Kramer, K. L., & **Poulain, F. E.** (2023). Teneurin trans-axonal signaling prunes topographically missorted axons. *Cell Reports*, 42(3), 112192. 10.0
- Spead, O., Weaver, C. J., Moreland, T., & **Poulain, F. E.** (2021). Live imaging of retinotectal mapping reveals topographic map dynamics and a previously undescribed role for Contactin 2 in map sharpening. *Development*, 148, dev199584. 6.9
- Sullivan, E.F., Xie, W., Conte, S., **Richards, J.E.**, Shama, T., Haque, R., Petri, W.A., & Nelson, C.A. (2022). Neural correlates of inhibitory control and associations with cognitive outcomes in Bangladeshi children exposed to early adversities. *Developmental Science* 25(5), e13245. 5.1
- Susam, B., Riek, N., Beck, K., Eldeeb, S., **Hudac, C.M.**, Gable, P., Conner, C., Akcakaya, M., White, S., & Mazefsky C. (2022). Quantitative EEG changes in Youth with ASD following brief mindfulness meditation exercise. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 30, 2395-2405 4.5
- Tay, D., Jannati, A., **Green, J. J.**, & McDonald, J. J. (2022). Dynamic inhibitory control prevents salience-driven capture of visual attention. *Journal of Experimental Psychology: Human Perception and Performance*, 48(1), 37. 3.3
- Teliska, L. H., I. Dalla Costa, O. Sert, **J.L. Twiss**, and M.N. Rasband. (2022). Axon initial segments are required for efficient motor neuron axon regeneration and functional recovery of synapses. *J Neurosci*. 42, 8054-8065. 6.7
- Thurman, A. J., Swinehart, S. S., **Klusek, J., Roberts, J. E.**, Bullard, L., Marzan, J. C. B., Brown, W. T., & Abbeduto, L. (2022). Daily living Skills in Adolescent and Young Adult Males with Fragile X Syndrome. *American Journal on Intellectual and Developmental Disabilities*, 127(1), 64–83. 2.3
- Tomeny, T., **Hudac, C. M.**, Kana, R., Maliai, E., Morett, L., Tomeny, K., & Watkins, L. (in press). Serving individuals with autism spectrum disorder in the age of COVID-19: Special considerations for rural and underserved families. *Rural Special Education Quarterly*. 1.4
- Tonnsen, B. L., Wheeler, A. C., Hamrick, L. R., & **Roberts, J. E.** (2019). Infant Temperament in the FMR1 Premutation and Fragile X Syndrome, *Journal of Clinical Child & Adolescent Psychology*, 48(3), 412–422 3.7
- Tryon, S. C., Bratsch-Prince, J. X., Warren, J. W., Jones, G. C., McDonald, A. J., & **Mott, D. D.** (2023). Differential regulation of prelimbic and thalamic transmission to the basolateral amygdala by acetylcholine receptors. *Journal of Neuroscience*, 43(5), 722-735. 6.7
- Twiss, J. L.**, Kalinski, A. L., Sahoo, P. K., Dalla Costa, I., & Giger, R. J. (2021). Neurobiology: Resetting the axon's batteries. *Current Biology*, 31(14), R914–R917. 10.8
- van Erp S., van Berkel A., Feenstra E., Sahoo P.K., Wagstaff L., Verhaagen J., **Twiss J.L.**, Fawcett J., Eva R., ffrench-Constant C. (2021). Age-related loss of axonal regeneration is reflected by the level of local translation. *Experimental Neurol*, 339, 113594. 5.3

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Verreet, T., Weaver, C. J., Hino, H., Hibi, M., & <b>Poulain, F. E.</b> (2019). Syntaphilin-mediated docking of mitochondria at the growth cone is dispensable for axon elongation in vivo. <i>eneuro</i> , 6(5), ENEURO.0026-19.2019	4.4
Wall, C. A., <b>Hogan, A. L.</b> , Will, E. A., McQuillin, S., Kelleher, B. L., & <b>Roberts, J. E.</b> (2019). Early negative affect in males and females with fragile X syndrome: implications for anxiety and autism. <i>Journal of Developmental Disorders</i> , 11(1), 1–11.	0.7
Wall, C. A., Shic, F., Varanasi, S., & <b>Roberts, J. E.</b> (2023). Distinct social attention profiles in preschoolers with autism contrasted to fragile X syndrome. <i>Autism Research</i> 16(2), 1–15.	3.7
Wang, L., <b>Narayanan, V.</b> , Yu, Y. C., Park, Y., & Li, J. S. (2021). A Nested Two-Stage Clustering Method for Structured Temporal Sequence Data. <i>Knowledge and Information Systems</i> , 63(7), 1627–1662.	3.2
Wang, Q., Wall, C. A., Barney, E. C., <b>Bradshaw, J. L.</b> , Macari, S. L., Chawarska, K., & Shic, F. (2020). Promoting social attention in 3-year-olds with ASD through gaze-contingent eye tracking. <i>Autism Research</i> , 13(1), 61-73.	3.7
Weaver, C. J., & <b>Poulain, F. E.</b> (2021). From whole organism to ultrastructure: progress in axonal imaging for decoding circuit development. <i>Development</i> , 148(18), dev199717.	6.9
Wheeler, A. C., Gwaltney, A., Raspa, M., Okoniewski, K. C., Berry-Kravis, E., Botteron, K. N., Budimirovic, D., Hazlett, H. C., Hessler, D., Losh, M., Martin, G. E., Rivera, S. M., <b>Roberts, J. E.</b> , & Bailey, D. B. (2021). Emergence of Developmental Delay in Infants and Toddlers with an <i>FMRI</i> mutation. <i>Pediatrics</i> , 147(5), 1e2020011528.	7.1
White, B. A., Dede, B., Heilman, M., Revilla, R., Lochman, J., <b>Hudac, C. M.</b> , Bui, C., & White, S. W. (2022). Facial affect sensitivity training for young children with emerging CU traits: An experimental therapeutics approach. <i>Journal of Clinical Child and Adolescent Psychology</i> , 51(3), 264-276	5.0
<b>Will, E. A.</b> , & <b>Roberts, J. E.</b> (2021). Motor Influences on Communication: Comparisons Between Down Syndrome and Fragile X Syndrome. <i>American Journal on Intellectual and Developmental Disabilities</i> , 126(6), 460–476.	2.3
<b>Will, E. A.</b> , Bishop, S. L., & <b>Roberts, J. E.</b> (2019). Developmental divergence: motor trajectories in children with fragile X syndrome with and without co-occurring autism. <i>Journal of Neurodevelopmental Disorders</i> , 11(23), 1–10.	1.5
<b>Wolfe, K.</b> , & McCammon, M. N. (2022). The analysis of single-case research data: Current instructional practices. <i>Journal of Behavioral Education</i> , 31(1), 28-42.	2.6
Wolfe, K., & McCammon, M.N. (2020). The analysis of single-case research data: Current instructional practices. <i>Journal of Behavioral Education</i> . <a href="https://doi.org/10.1007/s10864-020-09403-4">https://doi.org/10.1007/s10864-020-09403-4</a>	2.6
<b>Wolfe, K.</b> , & Seaman, M.A. (2023). The influence of data characteristics on interrater agreement among visual analysts. <i>Journal of Applied Behavior Analysis</i> , <a href="https://doi.org/10.1002/jaba.980">https://doi.org/10.1002/jaba.980</a> .	2.1
<b>Wolfe, K.</b> , McCammon, M.N., LeJeune, L.M., & Holt, A.K. (2021). Training preservice practitioners to make data-based decisions. <i>Journal of Behavioral Education</i> , 32, 1–20.	2.6

- Wright, C. J., Rentschler, K. M., Wagner, N. T., Lewis, A. M., Beggiano, S., & **Pocivavsek, A.** (2021). Time of day-dependent alterations in hippocampal kynurenic acid, glutamate, and gaba in adult rats exposed to elevated kynurenic acid during neurodevelopment. *Frontiers in Psychiatry, 12*, 734984. 3.1
- Wright, C., Milosavljevic, S., & **Pocivavsek, A.** (2022). 0298 Kynurenic Acid Synthesis Inhibitor Promotes Enhanced Sleep Recovery Following Acute Sleep Deprivation in Adult Wistar Rats. *Sleep, 45*(Supplement 1), A134–A134. 5.1
- Yingling, M. E., Bell, B. A., & **Hock, R. M.** (2019). Comparing neighborhoods of children with autism spectrum disorder in a medicaid waiver program and a state population, 2007-2015. *Psychiatric Services, 70*(11), 1034–1039. 2.9
- Zalachoras I., **Hollis F.**, Ramos E., Trovo L., Sonnay S., Geiser E., Preitner N., Steiner P., Sandi C., & Morato L. (2020). Therapeutic potential of glutathione-enhancers in stress-related psychopathologies. *Neurosci Biobehav Rev, 114*, 134-155. 8.2
- Zalachoras, I., Ramos-Fernández, E., **Hollis, F.**, Trovo, L., Rodrigues, J., Strasser, A., Zanoletti, O., Steiner, P., Preitner, N., Xin, L., Astori, S., & Sandi, C. (2022). Glutathione in the nucleus accumbens regulates motivation to exert reward-incentivized effort. *ELife, 11*, e77791. 8.7
- Zgodic, A., McLain, A. C., Eberth, J. M., Federico, A., **Bradshaw, J.**, & Flory, K. (2023). County-Level Prevalence Estimates of ADHD in Children in the United States. *Annals of Epidemiology, 79*, 56-64. 3.8
- Zhao, X., L.D. Huffman, H. Hafner, A.L. Kalinski, R. Kohen, C. Flynn, R. Passino, M. Athaiya, M. Finneran, C. Johnson, D. Kohrman, R. Kawaguchi, L. Yang, **J.L. Twiss**, D.H. Geschwind, G. Corfas, and R.J. Giger. (2022). The Injured Sciatic Nerve Atlas (iSNAT), Insights into the Cellular and Molecular Basis of Neural Tissue Degeneration and Regeneration. *eLife 11*, e80881. 8.7
- Zheng, S., Kaat, A. J., Farmer, C., Thurm, A., Burrows, C. A., Kanne, S., Georgiades, S. Esler, A., Lord, C., Takahashi, N., Nowell, K. P., Will, E., **Roberts, J.**, & Bishop, S. (2022). Bias in measurement of autism symptoms by spoken language level and nonverbal mental age in minimally verbal children with neurodevelopmental disorders. *Frontiers in Psychology, 13*, 927847. 4.2

## APPENDIX F: FY22 Presentations by CAN Core Faculty

Year	Presentation
2019	<b>F Poulain</b> – <i>Internalization and propagation of amyloid-b oligomers in vivo</i> , Charleston Conference on Alzheimer’s Disease, Charleston, SC 2019.
2019	<b>F Poulain</b> – <i>Destroy to build: selective axon degeneration for the wiring of neuronal circuits in vivo</i> , Texas A&M University, Dept of Biology, College Station, TX 2019
2019	<b>J Bradshaw</b> – <i>Supporting Social Communication Development in the First Two Years of Life</i> , SC LEND AHEC Lecture Series
2019	<b>JL Twiss</b> – <i>Autism and Neurodevelopmental Disorders Center of Excellence (USCAND)</i> , District of Columbia UofSC Alumni Council, UofSC College of Arts & Sciences, Washington, DC.
2019	<b>JL Twiss</b> – <i>Axon-intrinsic stress pathways for PNS regeneration</i> , Adelson Medical Research Foundation Fall 2019 Meeting, Las Vegas, NV.
2019	<b>JL Twiss</b> – <i>Axonal mRNA Translational Control</i> , Gordon Research Conference on Central Nervous System Injury and Repair, Waterville Valley, NH.
2019	<b>JL Twiss</b> – <i>Axonal signalling and growth cone remodelling</i> , Neuronal Maturation Workshop, Wellcome Trust, London, UK.
2019	<b>JL Twiss</b> – <i>Modulating nerve growth through RNA-protein interactions</i> . Invited Speaker, 13 <sup>th</sup> International Symposium on Mass Spectrometry in the Health & Life Sciences: Molecular and Cellular Proteomics, San Francisco, CA.
2019	<b>JL Twiss</b> – <i>Regulation of Axonal Protein Synthesis by G3BP1 Aggregation</i> , Gordon Research Conference on Amyotrophic Lateral Sclerosis, Stowe, VT.
2019	<b>JL Twiss</b> – <i>RNA-protein interactions as drivers of axon regeneration</i> , Texas A&M University Institute For Neuroscience, College Station, TX.
2019	<b>JL Twiss</b> – <i>Signaling Mechanisms for Regulation of Protein Synthesis in Axons</i> in ‘RNA Control of Axonal Functions’ Symposium, International Society for Neurochemistry/American Society for Neurochemistry joint meeting, Montreal, Canada.
2019	<b>JL Twiss</b> – <i>Targeting axonal stress granules to accelerate axon regeneration</i> , Seminar Series, UCL Queen Square Institute of Neurology, University College London, London, UK.
2019	<b>JL Twiss</b> – <i>Targeting stress pathways to accelerate nerve regeneration</i> , Center for Targeted Therapeutics COBRE Symposium, University of South Carolina, Columbia, SC.
2019	<b>JL Twiss</b> – <i>UofSC Autism and Neurodevelopmental Disorders Center of Excellence (Provost’s Excellence Initiative)</i> , UofSC Board of Visitors Meeting, Columbia, SC.
2019	<b>JL Twiss</b> – <i>UofSC Autism and Neurodevelopmental Disorders Center of Excellence (Provost’s Excellence Initiative)</i> , UofSC College of Arts & Sciences Board of Visitors Meeting, Columbia, SC.



Year	Presentation
2019	<b>JL Twiss</b> – <i>UofSC Autism and Neurodevelopmental Disorders Center of Excellence (Provost's Excellence Initiative)</i> , UofSC College of Arts & Sciences Columbia Alumni Council Meeting, Columbia, SC.
2019	<b>Klusek, J.</b> , Hong, J., Sterling, A., Berry-Kravis, E., Mailick, M. R. – <i>Response inhibition skills are modulated by age and CGG repeat length in women with the FMR1 premutation</i> , 4th International Conference on the FMR1 Premutation: Basic Mechanisms and Clinical Involvement, Rotterdam, Netherlands.
2019	<b>Scaler Scott, K., Klusek, J.</b> , Adams, C., Kisenweather, J., Thurman, A. J., Giuffre, L., Hartung, B., Header, T., Reed, J., Moon, R., Postiglione, S., Williams, S., Abbeduto, L. – <i>Cluttering in intellectual disability: Skilled differential diagnosis based on preliminary evidence in fragile X syndrome</i> , American Speech-Language Hearing Association Convention, Orlando, FL.
2019	<b>Wolfe, K.</b> – <i>Variety is the spice of life: Promoting varied client behavior</i> . Invited presentation at the South Carolina Association for Behavior Analysis Conference, Charleston, SC.
2020	<b>A Pocivavsek</b> – <i>Kynurenic Acid, Sleep, and Cognition: Building Blocks of Neuropsychiatric Illness</i> , Speaker Faculty Seminar, Biomedical Sciences Seminar Series at UofSC Columbia, SC.
2020	<b>A. Pocivavsek</b> – <i>Elevated Kynurenine Pathway Metabolism During Development: Implications for Brain and Behavior</i> , Invited Speaker Department of Biological Sciences at UofSC Columbia, SC
2020	<b>Abbeduto, L., Klusek, J.</b> , Lounds Taylor, J., & Thurman, A. J.– <i>Transitioning to independence in adulthood: What helps? What are the barriers?</i> 17th International Fragile X Conference (Virtual Series due to COVID-19), Orlando, FL.
2020	<b>Burton, J., Moser, C., &amp; Klusek, J.</b> – <i>Child predictors of maternal anxiety and depression symptoms: Cross-syndrome comparison of autism spectrum disorder and fragile X syndrome</i> . International Society for Autism Research Annual Meeting (Virtual Meeting due to COVID-19), Seattle, WA.
2020	<b>D. Smith</b> – <i>LISI get around</i> , Department of Biological Sciences weekly seminar, University of South Carolina, Columbia, SC.
2020	<b>F. Poulain</b> – <i>Destroy to build: selective axon degeneration for the wiring of neuronal circuits in vivo</i> , University of Missouri-Kansas City, Dept of Cell Biology and Biophysics, Kansas City, MO
2020	<b>Hogan, A., Smith, K., Hunt, E., Klusek, J., &amp; Roberts, J. E.</b> – <i>Developmental maturation in respiratory sinus arrhythmia predicts later autism symptoms, but not anxiety symptoms, in infants with fragile X syndrome</i> . International Congress of Infant Studies, Glasgow, Scotland. (Conference cancelled due to COVID-19).
2020	<b>J Bradshaw</b> , <i>Early Identification of Autism in the Infant Years</i> , Medical University of South Carolina Developmental Pediatrics, Didactics, Charleston, SC



Year	Presentation
2020	<b>Klusek, J.</b> , Moser, C., Thurman, A. J., & Abbeduto, L. – <i>Age-related decline in cognitive-linguistic skills in carriers of the FMR1 premutation: Syntactic complexity declines across midlife in women with family histories of FXTAS</i> . 17th International Fragile X Conference (Virtual Series due to COVID-19), Orlando, FL.
2020	<b>Wolfe, K.</b> – <i>Supporting successful family outings with young children with autism</i> . Invited presentation at the National Autism Conference, Penn State University (virtual).
2020	<b>Wolfe, K.</b> – <i>Single-case research designs: Current standards and recommendations</i> . Invited presentation at the South Carolina Association for Behavior Analysis Conference (virtual).
2020	<b>Wolfe, K.</b> , *McCammon, M.N., LeJeune, L.M., & Holt, A.K. – <i>Training preservice practitioners to make data-based decisions</i> . Presented at the Association for Behavior Analysis International annual conference (virtual).
2021	<b>A. Pocivavsek</b> – <i>Abnormalities in Behavior, Sleep, and Brain Gene Expression Profile in a Developmental Rodent Model: Relevance to Psychotic Disorders</i> , Invited Speaker National Big Data Health Science Conference 2021, University of South Carolina, Big Data Health Science Center, Columbia, SC.
2021	<b>A. Pocivavsek</b> – <i>Kynurenic Acid and Mental Health: Translational Perspectives of a Gliotransmitters that Regulates Sleep, Arousal, Oxidation and Cognition</i> , Symposium Chair and Speaker American College of Neuropsychopharmacology (ACNP) 60th Annual Meeting San Juan, Puerto Rico.
2021	<b>A. Pocivavsek</b> – <i>Sleep, Cognition, and Kynurenic Acid: Building Blocks of Neurodevelopmental and Psychiatric Disorders</i> , International Society for Tryptophan Research (ISTRY) 2021 Online Webinar Invited Speaker Virtual presentation.
2021	Agrawal, M. & <b>Welshhans, K.</b> – <i>DSCAM overexpression replicates neuronal morphology alterations observed in human Down syndrome iPSC-derived neurons during development</i> , Graduate Research Symposium, Kent State University, Kent, OH.
2021	Agrawal, M. & <b>Welshhans, K.</b> – <i>Altered developmental morphology of human iPSC- derived Down syndrome neurons and primary hippocampal neurons overexpressing DSCAM</i> . T21RS Virtual Conference, Virtual Meeting.
2021	Blanco-Gomez, G., <b>O'Reilly, C.</b> , & Elsabbagh, M. – <i>Abnormal resting-state lateralization in infants at risk for autism</i> . 5th annual NeuroSymposium conference, Ottawa, Canada.
2021	Conrad, C., Cerda, N., Kohn, B., <b>Edmunds, S. R.</b> , Graham, D., Hahn, P. Linnea, K., Weas, S., Windsor, L., & Chan, E. – <i>Family experience of telediagnostic evaluations for autism spectrum disorder in young children</i> , Society for Developmental & Behavioral Pediatrics, Virtual Conference.
2021	<b>D Drasgow</b> , Chezan, L. C., McCammon, M., Drasgow, E., & Wolfe, K. – <i>The Ecological Validity of Function-Based Interventions in Research and Practice</i> . Association for Behavior Analysis International annual virtual conference. San Francisco, CA.
2021	<b>D. Smith</b> – <i>Post-developmental roles for the DYNC1 regulator LIS1</i> . Dynein International Workshop (Virtual).

Year	Presentation
2021	<b>Edmunds, S. R.</b> – <i>Setting Families Up for Success: Prevention Strategies for Challenging Behavior in Toddlers with ASD or Communication Delays</i> , South Carolina Department of Disabilities and Special Needs.
2021	<b>Edmunds, S. R.</b> – <i>Supporting Autistic Undergraduate Students</i> , Division of Student Life at Oberlin College & Conservatory, Oberlin, OH.
2021	<b>Edmunds, S. R.</b> – <i>Strategies for Addressing Behavioral Challenges in Young Children</i> , Invited workshop, Children’s Trust of South Carolina, Columbia, SC.
2021	<b>Edmunds, S. R.</b> , Cerda, N., Kohn, B., Windsor, L., Conrad, C., Weas, S., Linnea, K., & Chan, E. – <i>Caregiver perceptions of telediagnostic evaluations for autism spectrum disorder: Barriers and facilitators</i> , Society for Developmental & Behavioral Pediatrics, Virtual Conference.
2021	<b>F Poulain</b> – <i>Destroy to build: selective axon degeneration for the wiring of neuronal circuits in vivo</i> , University of Vermont, Dept of Biology, Burlington, VT (virtual).
2021	Gifford, R., Corbin, N., Smith, S., & <b>Klusek, J.</b> – <i>Writing successful research grant applications in Communication Sciences and Disorders: Advice from Experts</i> , Conference panel, 2021 American Speech Language Hearing Association Convention, Washington, DC.
2021	<b>Hock, R.</b> – <i>Clinical Considerations in the Development of a Community-Based Support Program for Caregivers of Children with Autism Spectrum Disorder</i> , UofSC Department of Psychology Colloquium, Columbia, SC.
2021	<b>Hock, R.</b> , & Napoli, B. – <i>Family Connection of SC Focus Group Report</i> , OSEP-Funded Parent Training and Information Center.
2021	<b>Hudac, C.M.</b> – <i>A push to develop inclusive biomarkers for neurodevelopmental disorders</i> , Invited speaker at Stony Brook University’s Clinical Science Colloquium, in partnership with Society for a Science of Clinical Psychology’s Virtual Clinical Lunch series ( <a href="http://www.sscpweb.org/ClinicalLunch">http://www.sscpweb.org/ClinicalLunch</a> ).
2021	<b>J Bradshaw</b> – <i>Attention in Context: Physiological and Neurobehavioral Predictors of Social Engagement in Infancy</i> , Marcus Autism Center Grand Rounds, Children’s Hospital of Atlanta, Emory University, Atlanta Georgia
2021	<b>J Bradshaw</b> – <i>Mapping Infant Experience: Attention, Physiology, and Movement as Predictors of Social Engagement</i> , Institute for Mind and Brain Colloquium, University of South Carolina, Columbia, SC.
2021	<b>JL Twiss</b> – <i>Early stage investigators: grants, recruitment, and establishing effective collaborations</i> , Breakout Session Moderator for 3 <sup>rd</sup> Annual South Carolina Autism and Neurodevelopmental Disorders Symposium, Greenville, SC.
2021	<b>JL Twiss</b> – <i>Epigenetic regulation of mitochondrial function</i> , SC EPSCoR Meeting, virtual (also session chair for ‘Intersection of Epigenetics and Mitochondrial Function in Autism’).
2021	<b>JL Twiss</b> – <i>Mechanisms of axonal mRNA translation to accelerate nerve regeneration</i> , Biomedical Seminar Series, University of Nevada Reno School of Medicine, Reno, NV.

Year	Presentation
2021	<b>JL Twiss</b> – <i>Mechanisms of axonal mRNA transport and translation supporting nerve regeneration</i> , invited speaker for Bascom-Palmer Eye Institute meeting on ‘Protein synthesis and membrane expansion in neuronal regeneration’, University of Miami, Miami, FL.
2021	<b>JL Twiss</b> – <i>Mechanisms of axonal mRNA transport and translation supporting nerve regeneration</i> , Seminar, Biomedical Sciences Graduate Program, Kent State University, Kent, OH.
2021	<b>JL Twiss</b> – <i>New approaches to accelerate nerve regeneration</i> , Seventh Annual Peripheral Nerve Surgery Lectureship (‘Dellen Lecture’), Johns Hopkins University, Baltimore, MD.
2021	<b>JL Twiss</b> – <i>Regulating the axonal proteome through mRNA transport and translation</i> , Biological Sciences Department Seminar Series, Clemson University, Clemson, SC.
2021	<b>JL Twiss</b> – <i>Regulating the axonal proteome through mRNA transport and translation</i> , RNA Innovation Webinar Series, Center for RNA Biomedicine, University of Michigan, Ann Arbor, MI.
2021	<b>JL Twiss</b> – <i>Targeting axon-intrinsic mechanisms to improve neural repair</i> , Keynote Speaker for 30 <sup>th</sup> Annual Medical Scientist Training Program Research Day, Medical University of South Carolina, Charleston, SC.
2021	<b>Narayanan, V.</b> , Robertson, B. W., Hickerson, A., Srivastava, B., & Smith, B. W. – <i>Securing social media for seniors from information attacks: Modeling, detecting, intervening, and communicating risks</i> . [Conference panel]. Third IEEE International Conference on Trust, Privacy and Security in Intelligent Systems and Applications (TPS-ISA), Virtual Conference.
2021	<b>Welshhans, K.</b> – Axonal protein synthesis in development and Down syndrome. [Invited talk]. Department of Neuroscience & Regenerative Medicine Seminar Series, Medical College of Georgia - Augusta University, Augusta, GA.
2021	<b>Wolfe, K.</b> , *McCammon, M.N., LeJeune, L.M., & *Check, A. – <i>A review of visual analysis reporting procedures in the functional communication training literature</i> . Presented at the 47 <sup>th</sup> Association for Behavior Analysis International annual conference, Online.
2022	<b>A. Pocivavsek</b> – <i>Searching for the Elusive Link between Sleep, Cognition, and Mental Health</i> Invited Speaker Scientific Program for Slovenians Educated Abroad, VTIS Ljubljana, Slovenia.
2022	<b>A. Pocivavsek</b> – <i>Sleep, Cognition, and Kynurenic Acid: Building Blocks of Mental Health</i> . Monitoring Molecules in Neuroscience (MMN) 18 <sup>th</sup> International Conference, Invited Keynote Speaker, Lyon, France.
2022	<b>A. Pocivavsek</b> – <i>Tryptophan, Serotonin, and Kynurenine Metabolites: Neurodevelopmental Building Blocks with Long-Lasting Impacts</i> Symposium Chair and Speaker Mediterranean Neuroscience Society 8th International Conference Dubrovnik, Croatia.
2022	<b>Abbeduto, L., Klusek, J., Lounds Taylor, J., &amp; Thurman, A. J.</b> – <i>Transitioning to independence in adulthood: What helps? What are the barriers?</i> 18th International Fragile X Conference, San Diego, CA.

Year	Presentation
2022	Abbeduto, L., <b>Klusek, J.</b> , Lounds Taylor, J., & Thurman, A. J. – <i>Self advocate session: Transitioning to independence in adulthood: What helps? What are the barriers?</i> 18th International Fragile X Conference, San Diego, CA.
2022	Agrawal, M., & <b>Welshhans, K.</b> – <i>Stunted axon growth in DSCAM-overexpressing mice and in Down syndrome hiPSC-derived neuron</i> , T21RS International Conference, Long Beach, CA.
2022	Black, C., <b>Hogan, A.</b> , & <b>Roberts, J.</b> – <i>The development and predictive utility of early behavioral inhibition on later social anxiety symptoms in fragile X syndrome</i> , Oral presentation, Discover UofSC, Columbia, SC.
2022	Bratsch-Prince, J.X., Warren, J.W., Jones, G.C., and <b>Mott, D.D</b> – <i>Phasic acetylcholine release induces sharp wave ripples in the basolateral amygdala via nicotinic receptors</i> . Annual Society for Neuroscience Meeting, San Diego, CA.
2022	<b>CM Hudac</b> – <i>At-home EEG: Experiences from a mobile data collection road trip</i> , Invited talk at the Intellectual and Developmental Disabilities Research Center (IDDRC) Remote Working Group monthly meeting, national Zoom webinar.
2022	<b>CM Hudac</b> – <i>Using hyperscanning to understand dyadic social dynamics</i> , Invited talk at the annual Institute for Mind and Brain symposium on Social and Emotional Brain, University of South Carolina, Columbia, SC.
2022	<b>CM Hudac</b> – <i>Brain “coupling”: Electroencephalography (EEG) dynamics between loving partners and associations to the perception of love</i> , Invited talk at The Love Consortium annual meeting, Chapel Hill, NC.
2022	<b>CM Hudac</b> – <i>Inclusion in neuroscience: Out of the lab and into the community!</i> , Invited talk at the Psychology Colloquium, University of South Carolina, Columbia, SC.
2022	Coll-Tané, M., van Renssen, L., Gong, B., van Reijmersdal, B., Belfer, S. J., Kurtz-Nelson, E. C., <b>Hudac, C. M.</b> , Nowakowski, T., Earl, R. K., Pillen, S., Eichler, E. E., Kayser, Kleefstra, T., & Schenck, A. – <i>Translational Studies into Sleep Disturbance in Neurodevelopmental Disorders – of Mechanisms and Treatment Strategies</i> , Panel session, International Society for Autism Research, Austin, TX.
2022	Dorsey, G., Harkley, Z., Marino, M., Revilla, R., Stouder, D., Ward, V., Xia, M., & <b>Hudac, C.M.</b> – <i>Social seeking in young adolescents: Behavior, social functioning, and neural correlates</i> . Oral presentation at the B-RAD Lab Research Summer Seminar, Tuscaloosa, AL.
2022	Duff, T., Gautam, P., Harkley, Z., Marino, M., Williams, A., Friedman, N., Xia, M., & <b>Hudac, C.M.</b> – <i>N2 &amp; P3 effects in the Lunchroom task</i> , B-RAD Lab Research Summer Seminar, Tuscaloosa, AL.
2022	<b>Edmunds, S. R.</b> – <i>Active Ingredients of Early Interventions for Social Communication and ASD</i> , Invited workshop at the Nurturing Developing Minds Conference, facilitated by the Institute for Child Success and SC LEND.
2022	<b>Edmunds, S. R.</b> – <i>Naturalistic Developmental Behavioral Interventions (NDBIs): Making Recommendations for Naturalistic, Developmentally Appropriate ABA in the Context of the Evidence Base</i> . Developmental Behavioral Pediatrics and Psychology Fellowships, University of South Carolina School of Medicine Greenville & Columbia.

Year	Presentation
2022	<b>F. Poulain</b> – <i>It gets better with time: dynamic refinement of neural circuits in vivo</i> , International Zebrafish Society (IZFS) Webinar Series
2022	<b>F. Poulain</b> – <i>Destroy to build: trans-axonal degenerative signaling shapes neural circuits during development</i> , Society for Developmental Biology Southeast Conference, Chapel Hill, NC.
2022	<b>F. Poulain</b> – <i>Destroy to build: Teneurin trans-axonal prunes topographically missorted axons</i> , 17th International Zebrafish Conference, Montreal, Quebec, Canada.
2022	<b>F. Poulain</b> – <i>Destroy to build: Teneurin trans-axonal prunes topographically missorted axons</i> , Molecular Mechanisms of Neuronal Connectivity Conference, Cold Spring Harbor, NY.
2022	<b>F. Poulain</b> – <i>Destroy to build: trans-axonal degenerative signaling shapes neural circuits during development</i> , Keynote speaker for the 29 <sup>th</sup> anniversary of the Institute of Neurobiology, Universidad Nacional Autonoma de Mexico, Querétaro, México "
2022	Guy, M. W., Conte, S., <b>Hogan, A. L.</b> , Bursalioglu, A., <b>Richards, J. E.</b> , & <b>Roberts, J. E.</b> – <i>The P1 Event-Related Potential Response Is Associated with Sensory Responsivity in Infants with Fragile X Syndrome and High Familial Risk for Autism</i> , International Society for Autism Research, Austin, TX.
2022	Guy, M. W., <b>Richards, J. E.</b> , <b>Hogan, A. L.</b> , Black, C. B., & <b>Roberts, J. E.</b> – <i>Neural Correlates of Face Processing in Children with Autism, Fragile X Syndrome, Unaffected Siblings of Children with Autism, and Typical Development</i> , International Society for Autism Research, Austin, TX.
2022	Hernandez, J., Revilla, R., Stouder, D., Xia, M., & <b>Hudac, C.M.</b> – <i>Visual discrimination of upright and inverted faces in young adolescents</i> , B-RAD Lab Research Summer Seminar, Tuscaloosa, AL.
2022	<b>Hollis, F.</b> – <i>Role of Amygdala in Emotional and Social Behavioral Deficits in Fragile X Syndrome</i> . CAN Research Roundup, Columbia, SC.
2022	<b>Hudac, C.M.</b> – <i>EEG net application in coarse and curly hair</i> , Invited webinar with trainees at Children’s Hospital of Boston, Boston, MA.
2022	<b>Hudac, C.M.</b> – <i>A push to develop inclusive autism biomarkers: Considerations for co-occurring intellectual disability and mobility issues</i> . Radboud University Medical Center, Nijmegen, Netherlands.
2022	<b>J Bradshaw</b> – <i>Considerations in the Assessment and Treatment of Infants and Toddlers with ASD</i> , Conference on the Assessment of Autism Spectrum Disorders: Best Practice Guidelines for Measure Selection and Interpretation, UCSF
2022	<b>J Bradshaw</b> – <i>Infant Predictors of Social Engagement and Autism: Mapping Developmental Cascades</i> , Duke Center for Autism and Brain Development Speaker Series, Duke University, Durham, NC.
2022	<b>J Bradshaw</b> – <i>Neonatal Approaches to the Study of Early Social Development and ASD</i> , Prenatal, Perinatal, and Families Research Center, University of South Carolina, Columbia, SC.



Year	Presentation
2022	<b>JL Twiss</b> – <i>Local RNA Destabilization Hinders Axon Regeneration</i> , Central Nervous System Injury and Repair Gordon Research Conference, Oxnard, CA.
2022	<b>JL Twiss</b> – <i>Local translation in regulation of neuron growth and regeneration</i> , 70 <sup>th</sup> Katzir Conference 'Intrinsic Mechanisms of Size & Growth Regulation in Neurons, Weizmann Institute of Science, Rehovot, Israel.
2022	<b>JL Twiss</b> – <i>Localized RNA Regulons for supporting axon growth and regeneration</i> , EMBO Workshop 'RNA Localization and Local Translation', Sant Feliu De Guixols, Spain.
2022	<b>JL Twiss</b> – <i>mRNAs survival tunes axon regeneration rates</i> , Okinawa Institute of Science and Technology Workshop on 'Axonal Degeneration and Regeneration', Okinawa, Japan.
2022	<b>JL Twiss</b> – <i>Spatial and Temporal Control of The Axonal Proteome</i> , Cell Biology of the Neuron Gordon Research Conference, Waterville Valley, NH.
2022	<b>JL Twiss</b> – <i>Targeting Axon Intrinsic Mechanisms to Accelerate Neural Repair</i> , Keynote Speaker, Burke Neurological Institute Annual Retreat, Crystal Springs, NJ.
2022	<b>JL Twiss</b> – <i>Targeting axon-intrinsic mechanisms to improve neural repair</i> , Neuroscience Seminar Series, Baylor College of Medicine, Houston, TX.
2022	<b>JL Twiss</b> – <i>Targeting axon-intrinsic mechanisms to improve neural repair</i> , Seminar Series, Department of Microbiology and Molecular Genetics, University of California Irvine School of Medicine, Irvine, CA.
2022	<b>JL Twiss</b> – <i>Targeting axon-intrinsic mechanisms to improve neural repair</i> , Seminar Series, Merkin Peripheral Neuropathy and Nerve Regeneration (PNNR) Center, Johns Hopkins University, Baltimore, MD.
2022	<b>JL Twiss</b> – <i>Venturing into axons, from heretical ideas to growth acceleration</i> , Keynote Speaker, Delaware State University/University of Delaware COBRE program annual retreat, Newark, DE.
2022	<b>Klusek, J.</b> , Fairchild, A., Roberts, J. E., Abbeduto, L. – <i>Anxiety, but not depression, predicts longitudinal increase in functional tremor symptoms in women with the FMR1 premutation during midlife</i> . 18th International Fragile X Conference, San Diego, CA.
2022	<b>Knott, C.</b> , & <b>Roberts, J.</b> – <i>Sensory Processing in Children with Fragile X Syndrome and Idiopathic Autism: Implications for Maladaptive Behavior and Within-Syndrome Heterogeneity</i> , Oral presentation, Discover UofSC, Columbia, SC.
2022	<b>Moser, C.</b> , <b>Thurman, A. J.</b> , <b>Lounds Taylor, J.</b> , <b>Abbeduto, J.</b> , <b>Klusek, J.</b> – <i>Pragmatic language is associated with daily living skills in adolescents and adults with fragile X syndrome</i> . 18th International Fragile X Conference, San Diego CA.
2022	<b>O'Reilly, C.</b> – <i>Model-driven analysis of autonomic control in ASD using ECG</i> , Carolina Autism and Neurodevelopment Research Center Roundup, Columbia, SC.
2022	<b>O'Reilly, C.</b> – <i>EEG functional connectivity and its application to the study of Autism Spectrum Disorder (ASD)</i> , Institute of Mind and Brain Colloquium Series, Columbia, SC.

Year	Presentation
2022	<b>Pocivavsek A</b> , Milosavljevic S, Rentschler KM, Wright CJ – <i>Modeling Kynurenic Acid Elevation in Rodents during Development: Implications for Cognition and Psychiatric Illness</i> . 8th Annual Meeting of the Mediterranean Neuroscience Society. Dubrovnik, Croatia. May 2022.
2022	<b>Pocivavsek A</b> – <i>Kynurenic Acid in the Developing Brain: Sleep, Cognition, and Mental Health</i> , Invited Speaker, Department of Pharmacology at University of Texas Health San Antonio San Antonio, TX: September 28, 2022
2022	<b>Richards, J.E.</b> , Conte, S, Fox, N.A., Valadez, E.A., McSweeney, M., Tan, E., Pine, D.S., Winkler, A.M., Liuzzi, L., & Buzzell, G.A. – <i>Location of the cortical source of the "Error-related negativity" in adolescents and adults; A multimodal ERP/fMRI study</i> . Society for Psychophysiological Research annual meeting, Vancouver, CA
2022	<b>Richards, J.E.</b> , Guy, M.W., Hogan, A.L., & Roberts. J.E. – <i>Event-related potentials in children with fragile X syndrome and autism spectrum disorder</i> . Paper presented at the Society for Psychophysiological Research annual meeting, Vancouver, CA
2022	<b>Roberts, J.</b> – <i>fMRI Mutations as a Model for Advancing Understanding of Individual Differences</i> , Presentation as part of series on Brain Health and Genetics, ABC Project, University of South Carolina, Columbia, SC.
2022	<b>Roberts, J.</b> – <i>Value and Selection of Preliminary Data for Grant Applications</i> , Presentation as part of PROPEL Grant Training, University of South Carolina, Columbia, SC.
2022	<b>Roberts, J.</b> – <i>Artificial Intelligence: Game Changer or Game Over?</i> University of South Carolina, Columbia, SC.
2022	<b>V Narayanan</b> – <i>Event-driven approximate dynamic programming for feedback control</i> , Seminar in Advances in Computing Series, University of South Carolina, Columbia, SC.
2022	Ward, V., Friedman, N., Hernandez, J., Dorsey, G., Mathis, O., Hughes, S., Duff, T., Xia, M., & <b>Hudac, C.M.</b> – <i>Differences in social motivation interview scores: A comparison of an ASD sample vs. neurotypical sample</i> , B-RAD Lab Research Summer Seminar, Tuscaloosa, AL.
2023	<b>C O'Reilly</b> – <i>A model-driven approach to the analysis of ECG as a window into the autonomic nervous system</i> , South Carolina Autism and Neurodevelopmental Disorders Consortium (SCAND) 2023 annual meeting, Columbia, SC.
2023	Churillo, Amelia M, Freeburg LA, Stegmann K, Doster J, <b>Hollis F</b> , Wood SK, Priviero F, Webb RC Ryan MJ, Spinale FG. – <i>Chronic unpredictable stress changes left ventricular geometry and activation of the inflammasome</i> . American Physiology Summit, Long Beach, CA.
2023	<b>CM Hudac</b> – <i>Considering the “Rest” in Resting State: Alpha Rhythm Associations with Sleep in Individuals with Disruptive Genetic Variants</i> . Annual International Society for Autism Research (INSAR) meeting in Stockholm, Sweden.
2023	<b>CM Hudac</b> – <i>Experiences from the road: Mobile EEG success for minimally verbal and minimally ambulatory populations</i> . Annual International Society for Autism Research (INSAR) meeting in Stockholm, Sweden.



Year	Presentation
2023	<b>CM Hudac</b> – <i>Implications of contiguity and timing of EEG data loss for individuals with and without genetic variants</i> . Talk in symposium on “Data Loss in the Time of Funky Gadgets: Tales from Rare Genetic/Monogenic Disorders”, Annual Gatlinburg Conference on Research and Theory in Intellectual and Developmental Disabilities in Kansas City, MO.
2023	<b>CM Hudac</b> – <i>Milliseconds as Inches: Using EEG in SCN2A to understand attention and learning</i> . Talk in symposium on “Capturing <i>Inchstones</i> : Novel Approaches to Measurement for Severely Affected Children With SCN2A-Associated Developmental and Epileptic Encephalopathy”, Annual Gatlinburg Conference on Research and Theory in Intellectual and Developmental Disabilities in Kansas City, MO.
2023	<b>CM Hudac</b> – <i>Inclusive HD-EEG research for all people: Mobile testing, hair types, and other strategies to improve inclusion in neuroscience</i> . Magstim-EGI Academy, international virtual webinar
2023	<b>CM Hudac</b> – <i>Cross-species habituation in Drosophila and humans: Developing preclinical markers of neurodevelopmental disorders in ASD</i> , South Carolina Autism and Neurodevelopmental Disorders Consortium (SCAND) 2023 annual meeting, Columbia, SC.
2023	<b>D Foster</b> – <i>Examining repetitive behaviors in a preclinical setting</i> , South Carolina Autism and Neurodevelopmental Disorders Consortium (SCAND) 2023 annual meeting, Columbia, SC
2023	<b>Edmunds, S. R.</b> – <i>Meltdowns and Tantrums: Helping Parents Support Emotion Regulation in Toddlers Who May Have Autism</i> , Invited workshop to the annual Nurturing Developing Minds Conference, facilitated by the Institute for Child Success and SC LEND.
2023	<b>Edmunds, S. R.</b> – <i>Naturalistic Developmental Behavioral Interventions: Prioritizing “Active Ingredients” in NDBI Implementation</i> , Invited talk for the Duke Center for Autism Speaker Series, Duke University, Durham, NC.
2023	<b>Edmunds, S. R.</b> , Tagavi, D., Harker, C., DesChamps, T., & Stone, W. L. – <i>Family-centered care and quality of life in toddlers with confirmed or likely autism</i> , Annual meeting of the International Society for Autism Research, Stockholm, Sweden.
2023	<b>Hogan, A.L., Klusek, J., Cornell, E.G., Parks, E., Pattera, V., &amp; Roberts, J.</b> – <i>Social inhibition and pragmatic language in preschool-aged FMR1 premutation carriers</i> . 2023 International FMR1 Premutation Conference, Bay of Islands, New Zealand.
2023	<b>K Welshhans</b> – <i>DSCAM overexpression contributes to altered neural development in Down syndrome</i> , South Carolina Autism and Neurodevelopmental Disorders Consortium (SCAND) 2023 annual meeting, Columbia, SC.
2023	<b>Roberts, J.</b> – <i>Untitled Talk</i> , Presentation as part of the 34 <sup>th</sup> SC Disability Advocacy Day, State House of South Carolina, Columbia, SC.
2023	<b>Wolfe, K.</b> – <i>Supporting Data-Based Decision Making in Early Career Professionals</i> , North Carolina Association for Behavior Analysis Annual Conference. Winston-Salem, NC.

Year	Select undergraduate presentations
2021	Caputo, M., Smith, K., <b>Hogan, A., &amp; Roberts, J.</b> (2021, April 23). <i>Eye Gaze and Heart Rate Deceleration as Indices of Attention in Autism</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	Curtis, C., & <b>Twiss, J.</b> (2021, April 23). <i>Functional Interplay between Fubp1 and KHSRP</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	Dinu, I., Tillman, E., Smith, J., <b>Hogan, A., &amp; Roberts, J.</b> (2021, April 23). <i>Rates and physiological predictors of anxiety and shyness in boys with fragile x syndrome, autism, and comorbid fragile x and autism</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	Gorman-Sandler, E., & <b>Hollis, F.</b> (2021, April 23). <i>The Role of Mitochondrial Function in Postpartum Depression in Rats</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	Henninger, E., Hunt, E., Smith, K., <b>Hogan, A., &amp; Roberts, J.</b> (2021, April 23). <i>ASD Diagnostic Disparities between Males and Females</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	Jones, B., & <b>Twiss, J.</b> (2021, April 23). <i>Elucidating Functions of ATF4 in Neurons and Glia</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	Lauber, M., & <b>Klusek, J.</b> (2021, April 23). <i>Quantitative Analysis of Phonatory Parameters in Female FMR1 Premutation Carriers as a Potential Biomarker of Preclinical Fragile X-Associated Tremor/Ataxia Syndrome Symptoms</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	Lindbom, J., Coyle, R., Black, C., <b>Hogan, A., &amp; Roberts, J.</b> (2021, April 23). <i>Examining sex differences in anxiety symptoms and negative affect in preschoolers with autism spectrum disorder</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	McCarty, M., Coyle, R., Knott, C., <b>Hogan, A., &amp; Roberts, J.</b> (2021, April 23). <i>Differences in Symptom Presentation of Anxiety Disorders in Children with Autism Spectrum Disorder, Younger Siblings of Children with Autism Spectrum Disorder, and Typically Developing Children</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	McGill, F., Smith, K., <b>Hogan, A., &amp; Roberts, J.</b> (2021, April 23). <i>Relationship Between Social Motivation and Autism Symptom Severity in Autistic Children</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	McIntyre, K., & <b>Klusek, J.</b> (2021, April 23). <i>Respiratory Sinus Arrhythmia as a Predictor of Semantic Interference Performance and Ageing in Women with FMR1 Premutation</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	Mitta, A., Smith, K., <b>Hogan, A., &amp; Roberts, J.</b> (2021, April 23). <i>Predictors of Comorbid Anxiety in Children Diagnosed With Fragile X Syndrome</i> . [Poster session]. Discover UofSC, Columbia, SC.
2021	Parise, S., & <b>Twiss, J.</b> (2021, April 23). <i>Role of FXR1 and FMRP RNA Binding Proteins in Axon Growth</i> . [Poster session]. Discover UofSC, Columbia, SC.

**Year****Select undergraduate presentations**

- 2021 Ricca, L., Smith, J., **Hogan, A., & Roberts, J.** (2021, April 23). *Relationship between restricted and repetitive behavior and anxiety in children with fragile X syndrome and autism spectrum disorder.* [Poster session]. Discover UofSC, Columbia, SC.
- 2021 Robinson, I., Webb, M., Will, E., & **Roberts, J.** (2021, April 23). *Syndrome-Specific Attention Profiles in Infants with a Neurodevelopmental Disorder.* [Poster session]. Discover UofSC, Columbia, SC.
- 2021 Striebich, M., & **Klusek, J.** (2021, April 23). *Association between Language Production Ability and FXTAS Symptomology in Mothers with the FMR1 Premutation.* [Poster session]. Discover UofSC, Columbia, SC.
- 2021 Varanasi, S., Wall, C., & **Roberts, J.** (2021, April 23). *Exploring Visual Social Attention between On-Screen and Real-Life Interactions in Preschoolers with Autism Spectrum Disorder.* [Poster]
- 2021 Wakser, C., & **Klusek, J.** (2021, April 23). *Age and Syntactic Complexity in Mothers with the FMR1 Premutation.* [Poster session]. Discover UofSC, Columbia, SC.
- 2021 Ylagan, V., & **Bradshaw, J.** (2021, April 23). *The Relationship between Infant Behavioral Inhibition, Respiratory Sinus Arrhythmia, and Parent Social Anxiety.* [Poster session]. Discover UofSC, Columbia, SC.
- 2022 Arar, A., & **Dragow, E.** (2022, April 22). *An Exercise Program for Students with Developmental Disabilities Focused on Normalization.* [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Arora, A., Sahoo, P., & **Twiss, J.** (2022, April 22). *ATF4 downstream Effects are Cell-Context Specific in Neurons and Glia.* [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Bradbury, A., Bangert, K., & **Klusek, J.** (2022, April 22). *Correlation between the Broad Autism Phenotype Feature of Aloofness and Maternal Depression and Anxiety.* [Poster presentation]. Discover USC, Columbia, SC, United States
- 2022 Braodhead, A., Friedman, L., & **Klusek, J.** (2022, April 22). *Speech and Language Disfluencies in Mothers of Children With Autism or Fragile X Syndrome Across Communicative Contexts.* [Poster presentation]. Discover USC, Columbia, SC, United States
- 2022 Buoniconti, D., Crockett, A., Wright, C., **Mott, D., & Hollis, F.** (2022, April 22). *Establishing the signature of neural activation following social preference in Fmr1 mutant mice.* [Poster presentation]. Discover USC, Columbia, SC. *\*Received first place in Psychology & Neuroscience section for undergraduate poster presentation*
- 2022 Cobb, K., McQuail, J., Cox, T., Gorman, E., & **Hollis, F.** (2022, April 22). *Ketogenic diet reverses mitochondrial dysfunction in hippocampus of aging female rats with impaired memory.* [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Combs, I., & **Hudac, C. M.** (2022, April 4). *Biological and environmental factors contributing to preverbal infant word comprehension.* [Poster presentation]. Undergraduate Research and Creative Activity Conference, University of Alabama, Tuscaloosa, AL.

## Year

## Select undergraduate presentations

- 2022 Dea, A., Federico, A., & **Bradshaw, J.** (2022, April 22). *Bimanual Object Manipulation and Motor Skills in Infants at Elevated Likelihood for Autism Spectrum Disorder*. [Poster presentation]. Discover USC, Columbia, SC. *\*Received first place in Psychology & Neuroscience section for undergraduate poster presentation*
- 2022 Gardner, K., Gaita, B., Carney, K., Bangert, K., & **Roberts, J.** (2022, April 22). *Relationship between RSA and Language Development*. [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Klein, K., & **Klusek, J.** (2022, April 22). *Verbal fluency and the broad autism phenotype*. [Poster presentation]. Discover USC, Columbia, SC. *\*Received first place in Health Sciences section for undergraduate poster presentation*
- 2022 Lambert, M., Piroli, M., Milosavljevic, S., Sandago, E., & **Pocivavsek, A.** (2022, April 22). *Contribution of kynurenine 3-monooxygenase genotype in mice on parental behavior, maternal breast milk content, and long-lasting behavioral outcomes in adult offspring*. [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Lynch, D., & **Edmunds, S.** (2022, April 22). *Exploring Challenging Behavior of Autistic Children in Toddlerhood*. [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Mason, E., Smith, T., & **Twiss, J.** (2022, April 22). *Driving axon growth by changing the localized mRNA populations*. [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Menon, S., **Pocivavsek, A.**, & Milosavljevic, S. (2022, April 22). *Circadian-dependent Wakefulness in Kynurenine 3-Monooxygenase Genetically Modified Mice*. [Poster presentation]. Discover USC, Columbia, SC. *\*Received first place in Psychology & Neuroscience section for undergraduate poster presentation*
- 2022 Money, J., McElveen, M., Dalla Costa, I., & **Twiss, J.** (2022, April 22). *Exploring the effects of reduced Fig4 expression on axonal transport and mitochondrial function*. [Poster presentation]. Discover USC, Columbia, SC. *\*Received first place in Biology & Biomedical Sciences section for undergraduate poster presentation*
- 2022 Moran, O., & **Pocivavsek, A.** (2022, April 22). *Differences in Gene Expression, Rhythmicity and Pathways Due to Prenatal KYNA Elevation in Wistar Rats*. [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Nicholson, H., Milosavljevic, S., **Pocivavsek, A.**, & Fadel, J. (2022, April 22). *Acute Kynurenine Challenge Upregulates Activation of Orexinergic Neurons in the Lateral Hypothalamus*. [Poster presentation]. Discover USC, Columbia, SC. *\*Received first place in Psychology & Neuroscience section for undergraduate poster presentation*
- 2022 Robertson, B., Gorman-Sandler, E., Crockett, A., Buoniconti, D., Crawford, Joyner, D. & **Hollis, F.** (2022, April 22). *The postnatal mitochondrion: effects of gestational stress on offspring brain metabolism and behavior*. [Poster presentation]. Discover USC, Columbia, SC. *\*Received first place in Psychology & Neuroscience section for undergraduate poster presentation*
- 2022 Scharf, M., Federico, A., Platt, E., & **Bradshaw, J.** (2022, April 22). *Variations in Object Banging in Infants at Low and Elevated Likelihood for Autism Spectrum Disorder and Its Connections to Motor Development*. [Poster presentation]. Discover USC, Columbia, SC.

**Year****Select undergraduate presentations**

- 2022 Striebich, M., Bangert, K., & **Klusek, J.** (2022, April 22). *Association between speech production and monitoring to presence of the Fragile X premutation*. [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Verma, R., Moser, C., & **Klusek, J.** (2022, April 22). *Anxiety and Sensory Responsivity Examined in Adolescents and Adults with Fragile X Syndrome through an Auditory Startle Probe*. [Poster presentation]. Discover USC, Columbia, SC, United States
- 2022 Villanueva, F., Fu, X., & **Bradshaw, J.** (2022, April 22). *Building A Data Processing Pipeline for Research on the Early Detection of Autism*. [Poster presentation]. Discover USC, Columbia, SC. *\*Honorable mention in Psychology & Neuroscience section for undergraduate poster presentation*
- 2022 Walker, S., Knott, C., & **Roberts, J.** (2022, April 22). *Maternal Mental Health and Associated Outcomes in Fragile X Syndrome*. [Poster presentation]. Discover USC, Columbia, SC.
- 2022 Wenzel, A., Beckner, A., & **Bradshaw, J.** (2022, April 22). *MET Study: Ecological Validity and Data Quality*. [Poster presentation]. Discover USC, Columbia, SC. *\*Received second place in Psychology & Neuroscience section for undergraduate poster presentation*
- 2023 Combs, I. & **Hudac, C.M.** (April 2022). Biological and environmental factors contributing to preverbal infant word comprehension. Oral talk at annual Undergraduate Research and Creative Activity conference, University of Alabama. *\*Received Andy Reaves Memorial Award*

**APPENDIX G: Patents and Licensing Agreements**

CAN Faculty (bold)	Patent	Year
Amar Kar and <b>J.L. Twiss</b>	<i>Acetylation of Miro1</i> . Provisional US Patent Application Submitted Jan 2020. <b>Licensing agreement with Millipore in 2020 for marketing an acety-Miro1 specific antibody established January 2020.</b>	2020
Amar Kar, Pabitra Sahoo, Sean McGill, and <b>J.L. Twiss</b>	<i>Targeting G3BP aggregation to prevent neurodegeneration</i> . US Patent Application submitted March 2020 (Collaborators from RAMOT at Tel Aviv Univ. Ltd. and Tel Hashomer Medical Research in Israel were brought on as co-inventors for revised submission November 2022). US Patent Application # 20180250356	2020
<b>J.L. Twiss</b> and PK Sahoo	<i>Targeting G3BP proteins to accelerate nerve regeneration</i> . US Patent # 11382947, July 2022.	2022
<b>A Pocivavsek</b>	Provisional Patent Application (PPA): Sleep Disturbance Chamber for <i>Animal Test Subjects</i> (USC ID No. 1562), submitted 7/20/2022	2022



## APPENDIX H: Awards & Honors

CAN Faculty	Awards & Honors	Year
Jessica Bradshaw	McCausland Fellowship, University of South Carolina	2023
	Breakthrough Star Award, University of South Carolina	2021
Jessica Klusek	Breakthrough Star Award, Office of the VP for Research, USC	2023
David Mott	Nominated for a Distinguished Undergraduate Mentor Award.	2022
	Distinguished Research Service Award at the University of South Carolina	2019
Christian O'Reilly	Senior IEEE member IEEE	2022
Ana Pocivavsek	USC Breakthrough Star 2022	2022
	Invited Plenary, Monitoring Molecules in Neuroscience (MMN) 18 <sup>th</sup> International Conference, Lyons, France	2022
	Associate Member, American College of Neuropsychopharmacology (ACNP)	2021-present
	Invited as a speaker for the Society for Developmental Biology Southeast Conference, Chapel Hill, NC	2022
	Invited as the Keynote speaker for the 29th anniversary of the Institute of Neurobiology at the Universidad Nacional Autonoma de Mexico in Querétaro, México	2022
John Richards	Carolina Distinguished Professor Emeritus, University of South Carolina	Jan 2021-present
Jane Roberts	Fellow, Society for Psychophysiological Research, Initial elected group	May 2022-present
	Carolina Distinguished Professor Emeritus, University of South Carolina	2020-current
	Chair, Child Psychopathology and Developmental Disabilities NIH Study Section	2019-2020
Jeff Twiss	Weston Visiting Professorship, Weizmann Institute of Science, Rehovot, Israel	May-June 2022
	University of South Carolina Southeastern Conference Faculty Achievement Award	2022
	SCIRTS Senior Researcher Award, Craig H. Neilsen Foundation	2021
	Dellen Peripheral Nerve Lectureship, Johns Hopkins University	2021
Kristy Welshhans	CAS Junior Faculty Development Fellowship, University of South Carolina, PI: Welshhans	2021
Deanna Smith	SCHC Pearce Faculty Fellow	2020

## **APPENDIX I: Neuroscience Major Requirements**

### **Core Neuroscience Major Requirements**

#### **General Requirements (47-64 hours)**

*See USC Arts and Sciences Carolina Core and college requirements for full list of general requirements.*

#### **Supporting Courses (19 hours)**

*Supporting courses are prerequisites for Major Requirements.*

**PSYC 405** – Cognitive Psychology [3 credits]

**BIOL 302 & 302L** – Cell and Molecular Biology and Cell and Molecular Biology Laboratory [4 credits]

**CHEM 111 & 111L** – General Chemistry I and General Chemistry I Lab [4 credits]

**CHEM 112 & 112L** – General Chemistry II and General Chemistry II Lab [4 credits]

**CHEM 333 & 331L** – Organic Chemistry I and Essentials of Organic Chemistry Laboratory I [4 credits]

#### **Major Required Courses (12 hours)**

**NSCI 300** – Introduction to Neuroscience [3 credits]

**BIOL 405** – Cellular and Molecular Neurobiology [3 credits]

**PSYC 507** – Cognitive Neuroscience [3 credits]

**Neuroscience Research\*** [3 credits]

\* Training in the methods of scientific inquiry and the dissemination of research in neuroscience. Can be fulfilled with independent research undertaken with a faculty mentor or lab-based coursework. Must be approved by the Neuroscience program director.

- Independent research can be done under any major independent research code as long as the research is in the field of neuroscience and is approved by the Neuroscience Program Director. Examples include NSCI 498, BIOL 399, PSYC 498, PSYC 598, PSYC 599, SCHC 399, and BMEN 499.
- NSCI 570 – Neuroscience Laboratory can be used to fulfil the research requirement
- Other lab-based courses may be approved by the Neuroscience Program Director if they have a significant neuroscience component.

#### **General Electives (0-18 hours)**

*Additional courses needed to meet the 120-credit hour minimum requirement for the B.S.*

*CHEM 334/332L, PHYS 201, and PHYS 202 are recommended electives for Pre-Med.*

#### **Neuroscience Major Concentration Courses (12 hours)**

*Students must complete 12 hours of one of the following concentrations:*

- *Cellular and Molecular Neuroscience*
- *Cognitive and Behavioral Neuroscience*
- *Neurodevelopment and Neurodevelopmental Disorders*

*Courses applicable to each concentration for the 2022-2023 academic bulletin are listed on the subsequent pages.*

#### **Neuroscience Major Electives (12 hours)**

*Students must complete a minimum of 12 hours of elective coursework. Electives should be selected in conjunction with the neuroscience advisor to target each student's interests and career goals and complement their concentration coursework.*

*Courses applicable to each concentration for the 2022-2023 academic bulletin are listed on the subsequent pages.*

## Cellular and Molecular Neuroscience Concentration

### Applicable Concentration Courses (12 hours)

- BIOL 303** – Fundamental Genetics [3 credits]
- BIOL 530** – Histology [4 credits]
- BIOL 541** – Biochemistry [3 credits]
- BIOL 541L** – Biochemistry Laboratory [1 credit]
- BIOL 553** – Genomics [3 credits]
- BIOL 612** – Virology [3 credits]
- BIOL 614** – Stem Cell Biology [3 credits]
- BIOL 620** – Immunobiology [3 credits]
- BIOL 634** – Biology of Neurological Diseases [3 credits]
- BIOL 635** – Neurophysiology [4 credits]
- BIOL 665** – Human Molecular Genetics [3 credits]
- BIOL 667** – Molecular and Genetic Mechanisms of Disease [3 credits]
- BMEN 321** – Biomonitoring and Electrophysiology [3 credits]

### Applicable Courses (12 hours)

- BIOL 460** – General Physiology [3 credits]
- BIOL 461** – Advanced Human Anatomy [3 credits]
- BIOL 505** – Developmental Biology [3 credits]
- BIOL 534** – Animal Behavior [3 credits]
- BIOL 543** – Comparative Physiology [3 credits]
- COMD 501** – Anatomy and Physiology of Speech and Hearing Mechanisms [3 credits]
- EXSC 303** – Perceptual-Motor Development [3 credits]
- EXSC 351** – Acquisition of Motor Skills [3 credits]
- NSCI 560** – Advanced Topics in Neuroscience [3 credits]
- NSCI 570** – Neuroscience Laboratory [3 credits]
- PHIL 351** – Mind and Nature [3 credits]
- PSYC 400** – Survey of Learning and Memory [3 credits]
- PSYC 450** – Sensation and Perception [3 credits]
- PSYC 503** – Psychology of Drug Use and Effects [3 credits]
- PSYC 550** – Advanced Sensation and Perception [3 credits]
- PSYC 571** – Cognitive Neuroscience Laboratory [3 credits]
- PSYC 572** – Cognitive Psychology Laboratory [3 credits]
- Individual Research** [1-6 credits]

*Approved special topics courses and internships*

## Cognitive and Behavioral Neuroscience Concentration

### Applicable Concentration Courses (12 hours)

#### List A (minimum 3 hours)

- BIOL 460** – General Physiology [3 credits]
- BIOL 534** – Animal Behavior [3 credits]
- BIOL 543** – Comparative Physiology [3 credits]
- COMD 501** – Anatomy and Physiology of Speech and Hearing Mechanisms [3 credits]
- EXSC 351** – Acquisition of Motor Skills [3 credits]

#### List B (minimum 3 hours)

- PSYC 400** – Survey of Learning and Memory [3 credits]
- PSYC 450** – Sensation and Perception [3 credits]
- PSYC 503** – Psychology of Drug Use and Effects [3 credits]
- PSYC 550** – Advanced Sensation and Perception [3 credits]
- PSYC 571** – Cognitive Neuroscience Laboratory [3 credits]
- PSYC 572** – Cognitive Psychology Laboratory [3 credits]

### Applicable Courses (12 hours)

- BIOL 303** – Fundamental Genetics [3 credits]
- BIOL 461** – Advanced Human Anatomy [3 credits]
- BIOL 505** – Developmental Biology [3 credits]
- BIOL 530** – Histology [4 credits]
- BIOL 541** – Biochemistry [3 credits]
- BIOL 541L** – Biochemistry Laboratory [1 credit]
- BIOL 553** – Genomics [3 credits]
- BIOL 612** – Virology [3 credits]
- BIOL 614** – Stem Cell Biology [3 credits]
- BIOL 620** – Immunobiology [3 credits]
- BIOL 634** – Biology of Neurological Diseases [3 credits]
- BIOL 635** – Neurophysiology [4 credits]
- BIOL 665** – Human Molecular Genetics [3 credits]
- BIOL 667** – Molecular and Genetic Mechanisms of Disease [3 credits]
- BMEN 321** – Biomonitoring and Electrophysiology [3 credits]
- EXSC 303** – Perceptual-Motor Development [3 credits]
- NSCI 560** – Advanced Topics in Neuroscience [3 credits]
- NSCI 570** – Neuroscience Laboratory [3 credits]
- PHIL 351** – Mind and Nature [3 credits]
- Individual Research** [1-6 credits]

*Approved special topics courses and internships*

## Neurodevelopment and Neurodevelopmental Disorders Concentration

### Applicable Concentration Courses (12 hours)

#### Required (6 hours)

**BIOL 505** – Developmental Biology [3 credits]

**PSYC 420** – Survey of Developmental Psychology [3 credits]

#### 6 hours selected from

**BIOL 614** – Stem Cell Biology [3 credits]

**BIOL 634** – Biology of Neurological Diseases [3 credits]

**PSYC 510** – Child Behavioral and Mental Disorders [3 credits]

**PSYC 520** – Psychology of Child Development [3 credits]

**PSYC 521** – Psychology of Adolescence [3 credits]

### Applicable Courses (12 hours)

**BIOL 303** – Fundamental Genetics [3 credits]

**BIOL 460** – General Physiology [3 credits]

**BIOL 461** – Advanced Human Anatomy [3 credits]

**BIOL 530** – Histology [4 credits]

**BIOL 534** – Animal Behavior [3 credits]

**BIOL 541** – Biochemistry [3 credits]

**BIOL 541L** – Biochemistry Laboratory [1 credit]

**BIOL 543** – Comparative Physiology [3 credits]

**BIOL 553** – Genomics [3 credits]

**BIOL 612** – Virology [3 credits]

**BIOL 614** – Stem Cell Biology [3 credits]

**BIOL 620** – Immunobiology [3 credits]

**BIOL 634** – Biology of Neurological Diseases [3 credits]

**BIOL 635** – Neurophysiology [4 credits]

**BIOL 665** – Human Molecular Genetics [3 credits]

**BIOL 667** – Molecular and Genetic Mechanisms of Disease [3 credits]

**BMEN 321** – Biomonitoring and Electrophysiology [3 credits]

**COMD 501** – Anatomy and Physiology of Speech and Hearing Mechanisms [3 credits]

**EXSC 303** – Perceptual-Motor Development [3 credits]

**EXSC 351** – Acquisition of Motor Skills [3 credits]

**NSCI 560** – Advanced Topics in Neuroscience [3 credits]

**NSCI 570** – Neuroscience Laboratory [3 credits]

**PHIL 351** – Mind and Nature [3 credits]

**PSYC 400** – Survey of Learning and Memory [3 credits]

**PSYC 450** – Sensation and Perception [3 credits]

**PSYC 503** – Psychology of Drug Use and Effects [3 credits]

**PSYC 550** – Advanced Sensation and Perception [3 credits]

**PSYC 571** – Cognitive Neuroscience Laboratory [3 credits]

**PSYC 572** – Cognitive Psychology Laboratory [3 credits]

**Individual Research** [1-6 credits]

*Approved special topics courses and internships*