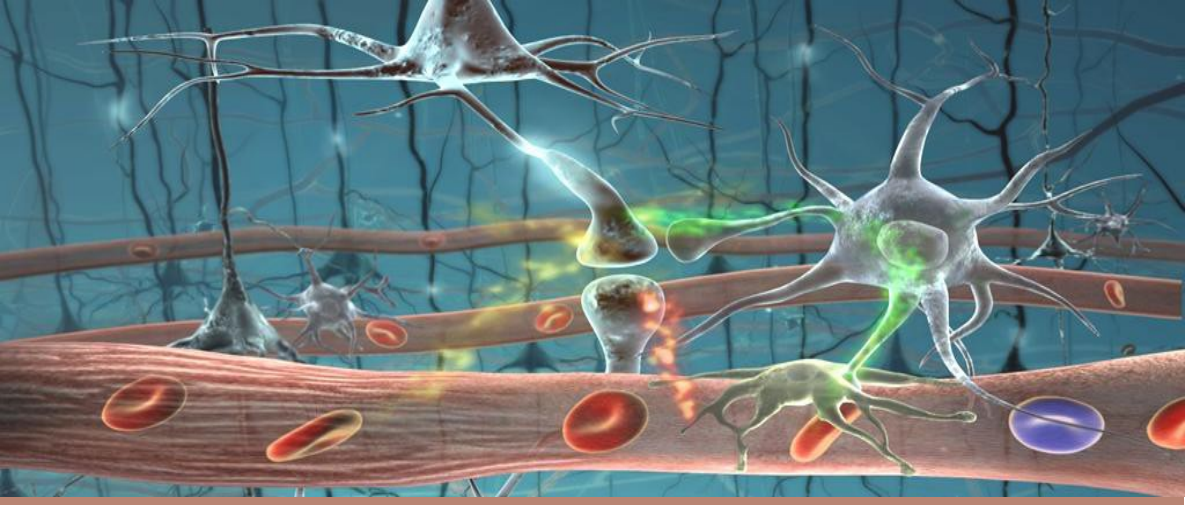

1st Annual Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (ENDURE) 2011 Program Meeting

Washington, DC

November 11, 2011

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ENDURE Program Goals

The Blueprint initiative "Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (ENDURE)" aims to raise interest and opportunities in neuroscience research for individuals who are typically underrepresented in the neuroscience. The goal is to provide such individuals with training at the undergraduate level, so that they are prepared to enter and successfully complete neuroscience Ph.D. programs. ENDURE provides undergraduate training through partnerships between research-intensive institutions and institutions with a substantial enrollment of neuroscience majors from diverse groups. This includes individuals from underrepresented racial and ethnic groups; individuals with disabilities; and individuals from economically disadvantaged backgrounds. ENDURE undergraduate training programs support a range of activities to increase student interest and involvement in the neurosciences, including research experiences, core and advanced neuroscience courses, seminars, and journal clubs. In FY 10, five ENDURE awards were granted.

Meeting Goals

As issued, the RFA (http://grants.nih.gov/grants/guide/rfa-files/RFA-MH-10-070.html) cites "it is a goal of this initiative that the NIH Blueprint Institutes will convene an annual meeting that will bring together BP-ENDURE program directors and participating students". The purpose of the meeting will be to discuss best practices and provide a forum for student scientific and academic enhancing activities. An additional goal and outcome for this annual meeting is to provide linkage and opportunity for collaboration for existing diversity (example Neuroscience Scholars Program) and undergraduate (example Faculty for Undergraduate Neuroscience) programs already at Society for Neuroscience. The students will enhance their networks with other ENDURE participants, peer mentoring from diverse graduate students, and T32 program directors.

The Organizing Committee

Dr. Michelle Jones-London	Dr. Mark Chavez	Dr. Alberto Rivera-rentas
Ms. Christiana Robbins	Ms. Lynn Morin	Ms. Theresa Tolbert

The Dixon Group, Inc. Staff

Ms. Nicole Chapman	Ms. Nakia Wilson	Mrs. Josette Paige

For further information about the program and its training sites:
http://neuroscienceblueprint.nih.gov/bp_nih-supported_training/endure_programs.htm

1ST ANNUAL ENHANCING NEUROSCIENCE DIVERSITY THROUGH UNDERGRADUATE RESEARCH EDUCATION EXPERIENCES (ENDURE) 2011 PROGRAM MEETING

NOVEMBER 11, 2011
GRAND HYATT HOTEL, WASHINGTON, DC * INDEPENDENCE BALLROOM E

AGENDA

2:30 – 3:00 pm REGISTRATION

3:00 – 3:05 pm MEETING GOALS AND INTRODUCTION
Dr. Michelle Jones-London, Office of Training, Career Development and Workforce Diversity, National Institute for Neurological Disorders and Stroke (NINDS)

3:05 – 3:15 pm NIH BLUEPRINT WELCOME
Dr. Story Landis, NINDS Director

3:15 – 3:45 pm ENDURE UNDERGRADUATE TRAINING COMMUNITY OVERVIEW
(R25 PIs state program name, focus and identify areas of interest for collaboration)

- Georgia State University, Atlanta - *Dr. Kyle J. Frantz*
  Partner institutions: Emory University, Agnes Scott College and Spelman College

- Hunter College, New York- *Dr. Vanya Quinones-Jenab*
  Partner Institution: New York University

- University of Colorado, Denver - *Dr. Diego Restrepo*
  Partner Institution: New Mexico State University

- University of Texas Health Science Center, San Antonio - *Dr. Alan Frazer*
  Partner Institutions: University of Texas, San Antonio; Lady of the Lake University; St. Mary's University; Trinity University; and University of the Incarnate Word

- University of Puerto Rico, Rio Piedras - *Dr. Jose Garcia-Arraras*
  Partner Institutions: Inter-American University of Puerto Rico, Bayamon Campus and Universidad el Este

4:00 – 5:15 pm PATHWAYS AND PERSPECTIVES ON BEING A RESEARCHER
CHAIR AND PANEL INTRODUCTIONS: *Dr. Mark Chavez*, Division of Adult Translational Research and Treatment Development, National Institute of Mental Health (NIMH)

A discussion framed by several specific questions: What a graduate student should expect both of the school and themselves? How to identify a good mentor? Why a career in neuroscience research is fulfilling? How do I prepare for and navigate some of the challenges of graduate school?

Each accomplished researcher will share their research background and answer the general questions from their respective lens including early lessons from junior faculty, being a diverse scientist, and programmatic views and expectations from a T32 Director and College Dean

- *Farah Lubin, Ph.D.* - University of Alabama at Birmingham, Department of Neurobiology, Assistant Professor

- *Francis Lotrich, M.D., Ph.D.* - University of Pittsburgh School of Medicine, Department of Psychiatry, Assistant Professor

- *Kathleen Friel, Ph.D.* - Columbia University Medical Center, Division of Brain Stimulation and Therapeutic Modulation, Assistant Professor

- *Irwin Lucki, Ph.D.* - University of Pennsylvania, Department of Psychiatry, Professor

- *Tuajuanda Jordan, Ph.D.* - Lewis and Clark College, Dean of College of Arts and Science

5:15 – 5:30 pm OPEN DISCUSSION
(Questions from the floor and from note cards)

Moderator: Dr. Alberto L. Rivera-Rentas, Minority Biomedical Research Support (MBRS) Branch, National Institute of General Medical Sciences (NIGMS)

5:30 – 5:35 pm CLOSING REMARKS
Dr. Thomas R. Insel, NIMH Director

5:35 – 7:00 pm T32 RECRUITMENT FAIR, NETWORKING AND LIGHT RECEPTION

BIOGRAPHICAL SKETCHES - PANEL SPEAKERS

Each accomplished researcher will share their scientific research background and answer mentoring and general training questions from their respective lens including: early lessons from junior faculty, being a diverse scientist, and programmatic views and expectations from a T32 Director and College Dean.

Farah D. Lubin, Ph.D.
University of Alabama at Birmingham
Assistant Professor
Department of Neurobiology

Dr. Lubin received her Ph.D. in Cell Molecular immunology from Binghamton University in Binghamton, New York. She has completed two postdoctoral fellowships in Molecular Neuroscience at Baylor College of Medicine in Houston, Texas and most recently in the Department of Neurobiology at UAB. Dr. Lubin is a recipient of a Pathway to Independence Award from the National Institutes of Health (NIH/NIMH) and FASEB Award. Currently, Dr. Lubin's research is primarily directed towards identifying transcriptional mechanisms that serve to regulate gene expression changes necessary for learning and memory. Her lab is focused on characterizing the role of epigenetic mechanisms and signaling cascades that mediate the interaction of transcription factors to chromatin and determine how they participate in the regulation of gene expression as they relate to learning and memory and memory deficits associated with aging, post-traumatic stress disorder, and epilepsy.

Francis E. Lotrich, M.D., Ph.D.
University of Pittsburgh School of Medicine
Assistant Professor
Department of Psychiatry

Dr. Lotrich is interested in genetic vulnerability and resilience to major depression, specifically depression that is directly related to medical illness. In particular, he is conducting research on interferon-induced depression in humans and investigating the interaction of genes, personality, and cytokine exposure in the etiology of depression. More broadly, he is interested in genetic vulnerability to a broad array of potentially depression-related hormones and cytokines, including cortisol, estrogen, and TNF-alpha. He has similarly been using pharmacogenetic tools to examine genetic influences on the efficacy of antidepressant interventions.

Kathleen Friel, Ph.D.
Columbia University Medical Center
Assistant Professor
Division of Brain Stimulation and Therapeutic Modulation

Dr. Kathleen Friel is an Assistant Professor of Clinical Psychiatry in the Division of Brain Stimulation and Therapeutic Modulation (BSTM). Dr. Friel received her Ph.D. from the University of Kansas Medical Center, studying neurophysiological correlates of stroke recovery in the laboratory of Dr. Randolph Nudo. Dr. Friel completed a postdoctoral fellowship in the laboratory of Dr. John Martin at Columbia University. With Dr. Martin, she investigated rehabilitation strategies-- and their neural underpinnings-- in an animal model of hemiplegic cerebral palsy (CP). Dr. Friel joined the faculty of the BSTM in July 2008. In the BSTM, she conducts translational research in children with hemiplegic CP.

Irwin Lucki, Ph.D.
University of Pennsylvania
Professor
Departments of Psychiatry and Pharmacology

Dr. Lucki's ongoing research focuses on the neural mechanisms associated with anxiety and mood disorders and the behavioral effects of antidepressants and antianxiety drugs, as well as the development of new therapeutic approaches leading to improved psychiatric medications for treatment of behavioral disorders. He has conducted clinical pharmacologic research studies and receives research funding from the National Institutes of Health (NIH), private foundations, and the pharmaceutical industry. Dr. Lucki is Director of the Training Program in Neuropsychopharmacology, a training program composed of over 35 faculty focused on translational research in Psychiatry supported by the NIH for over 30 years (http://www.med.upenn.edu/npp_training/). He is a member of the Graduate Groups in Pharmacological Sciences, Neuroscience and Psychology at the University of Pennsylvania. He has mentored over 30 graduate students and postdoctoral fellows.

Tuajuanda Jordan, Ph.D.
Lewis and Clark College
Dean
College of Arts and Science

Dr. Jordan is the Dean of the College at Lewis & Clark College in Portland, Oregon. Prior to coming to Lewis & Clark, she was a director of science education at the Howard Hughes Medical Institute where her program, the National Genomics Research Initiative, was heralded as a model for science education. From 1994 – 2005, Dr. Jordan was on the faculty at Xavier University of Louisiana in the chemistry and eventually promoted to the position of associate vice president of academic affairs. Dean Jordan received a B.S. in chemistry from Fisk University and a PhD in biochemistry from Purdue University. She has served on numerous boards and committees focused on diversity, science, and science education. Most recently she was appointed to the NIH Advisory Committee to the Director Working Group on Diversity in the Biomedical Research Workforce.

MENTORING RESOURCES AND PROFESSIONAL CONFERENCES

"MENTOR: SOMEONE WHOSE HINDSIGHT CAN BECOME YOUR FORESIGHT"

Society for Neuroscience Mentoring Program
http://neuronline.sfn.org/home/

How to Get the Mentoring You Want: A Guide for Graduate Students at a Diverse University
http://www.apa.org/research/responsible/mentoring/mentoring-guide.pdf

How to Mentor Graduate Students: A Guide for Faculty
http://www.sfn.org/siteobjects/published/0000BDF20016F63800FD712C30FA42DD/861CA2EFD35FE6C55BACF0EC0F5ADF6E/file/HowtoMentorGradStudents.pdf

JustGarciaHill: A Virtual Community for Minorities in Sciences
http://justgarciahill.org/

The Leadership Alliance
http://www.theleadershipalliance.org/

NIDA Mentoring Guide
http://www.drugabuse.gov/mentoringguide/MentoringGuide.pdf

PROFESSIONAL CONFERENCES

Venues for professional development activities, scientific presentations and networking opportunities with diverse peers, faculty and academic biomedical research Institutions

- Association of American Indian Physicians (AAIP)
- Annual Biomedical Research Conference for Minority Students (ABRCMS)
- Association of Minority Health Professions Schools, Inc. (AMHPS)
- Hispanic Association of Colleges and Universities (HACU)
- Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)
- Neuroscience Scholars Program (NSP) at Society for Neuroscience

ENDURE TRAINEE INFORMATION AND RESEARCH ABSTRACTS

BP-ENDURE-ATLANTA: ENGAGING UNDERGRADUATES IN NEUROSCIENCE RESEARCH

GEORGIA STATE UNIVERSITY
Principal Investigator: *Dr. Kyle J. Frantz*
Partner Institutions: Emory University, Agnes Scott College and Spelman College

PROGRAM DESCRIPTION: Undergraduate students can be attracted to science by engaging in research. A summer experience as an apprentice in a scientist's laboratory or clinic may be effective in this regard, but short-term research may fail to provide the preparation necessary to progress into PhD programs in fields such as neuroscience.

The BP- ENDURE-Atlanta project led by Georgia State University (GSU) in partnership with Agnes Scott College (ASC), Emory University, and Spelman College, will provide a two-year neuroscience research immersion and integration program for students from underrepresented groups. Program evaluation will test the hypothesis that in-depth research training, coupled with an intensive professional development workshop series, will positively affect participants' communication skills and confidence with research abilities, and will increase rates of matriculation into neuroscience PhD programs. Identification of a reliable approach to developing the skills and confidence necessary to progress into PhD programs will enable more students from various backgrounds to pursue their interests in science, and will ultimately increase diversity in the US scientific workforce.

Specific Aim 1 is to engage undergraduates from underrepresented groups in research and training, using a two-year program for junior and senior undergraduates that includes five major components: 1) a research immersion in Atlanta's well-established BRAIN summer program; 2) a Research Assistantship in the first academic year; 3) a Travel Assistantship to conduct research at a partner T32 training program in the second summer; 4) a Capstone Research Assistantship during the second academic year; and 5) an intensive professional development workshop series.

Specific Aim 2 is to test the hypothesis that this neuroscience research program will positively affect scientific communication skills and confidence with research abilities among undergraduates, thereby raising rates of matriculation into neuroscience PhD programs.

By conducting hypothesis-driven science education research, this project will fill a gap in current knowledge about how best to encourage and prepare students to help address biomedical, behavioral, and clinical research needs, with a focus on students from underrepresented groups. By publishing results in peer-reviewed journals targeting different subpopulations in the scientific community, we will extend beyond the norm of many training programs in terms of contributing to best practices in science education.

ENDURE TRAINEE ABSTRACT

NAME: *MICHELLE AUTREY*
Home Institution and State: Agnes Scott College, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Psychology, May 2013
Mentors/Advisors at Home Institution: Dr. William Hopkins

ENDURE TRAINEE SCIENTIFIC INTERESTS
Ms. Autrey's research interests include cognition and behavior, as well as disorders of nervous system, development, depression, Alzheimer's disease, and Post-Traumatic Stress Disorder.

ENDURE TRAINEE CAREER GOALS AND PLAN
Ms. Autrey's post-baccalaureate plans could include obtaining a Ph.D. in clinical psychology and opening a private practice. She wants to able to help any individuals that need assistance, so she hopes to have a practice that is accessible to individuals from all income levels. She would also like to create a foundation to help homeless individuals. Additionally, she is considering an appointment with either AmeriCorps or the Peace Corps.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: Georgia State University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Thomas Kukar

Research Project Title: New Activity of Progranulin in Frontotemporal Lobar Degeneration

Progranulin (PGRN) is a secreted glycoprotein that contains 7.5 repeats of a 12-cysteine motif. Mutations in PGRN have been identified to cause a form of dementia called Frontotemporal Lobar Degeneration with ubiquitin-positive inclusions (FTLD-U). PGRN is known to act as a growth factor and is involved in inflammation and wound repair in the periphery. PGRN's role in the central nervous system is less clear. Neurons in FTLD-U patients with PGRN mutations have abnormal aggregates of a protein called TAR DNA-Binding Protein 43 (TDP-43). It is unknown how decreased levels of PGRN, a secreted protein, leads to abnormal metabolism and cleavage of TDP-43, which is normally found in the nucleus. We hypothesized that PGRN might shuttle into the nucleus where it could have more direct interaction with TDP-43. Using cellular fractionation we detected a fragment, not full length, PGRN in the nucleus. Experiments with protease inhibitors suggest elastase or cathepsins may be involved in formation of this fragment of PGRN.

ENDURE TRAINEE ABSTRACT

NAME: *MICKEYL BRADFORD*
Home Institution and State: Georgia State University, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Psychology, May 2013
Mentors/Advisors at Home Institution: Dr. Brad Cooke

ENDURE TRAINEE SCIENTIFIC INTERESTS

Mr. Bradford is currently studying the role of the sexually dimorphic medial amygdala and the sex-specific social behaviors (specifically stress response, juvenile play, and aggression) that result from stimulation to this region. His research interests include juvenile gender and sexuality expression, hypothalamic and olfactory control of sexual behavior and partner preference, and prenatal sexually dimorphic development.

ENDURE TRAINEE CAREER GOALS AND PLAN

Mr. Bradford plans to pursue a Ph.D. in behavioral neuroscience with a focus in behavioral neuroendocrinology. He is also interested in promoting science for future generations of students.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Georgia State University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Kyle Frantz and Dr. Tiffany Oliver

Research Project Title: Chronic Ethanol Effects on Social Behavior in *Procambarus clarkii*

Our study investigates the effects of chronic ethanol (EtOH) exposure on social behavior, using an animal model with a well-characterized agonistic behavioral repertoire, *Procambarus clarkii* (red swamp crayfish). We hypothesized simply that EtOH exposure would increase aggressive behavior in crayfish. Thus, crayfish were exposed to a 400 mM EtOH bath solution one hour per day for 14 consecutive days. On alternating days after the EtOH bath, crayfish were placed in an observation tank and their social behaviors were measured using an ethogram to record frequency of attack, approach, retreat, and escape. Following EtOH exposure, hemolymph was extracted to assess circulating alcohol concentrations. Finally, crayfish nerve cords were collected to analyze 5-HT receptor protein expression, given the known role of serotonin in crayfish aggression. We predicted the following outcomes: 1) EtOH exposure would increase aggressive behavior in crayfish; 2) Hemolymph alcohol content would be detectable after EtOH exposure; and 3) heightened 5-HT receptor protein levels would correlated positively with aggressive behaviors. Although we did not observe increased aggression in EtOH-exposed animals, they were overall more socially active than controls. In addition, we were able to detect EtOH in EtOH-exposed animals. The results from our 5-HT receptor expression analysis remain inconclusive to date. Future studies will further investigate whether 5-HT receptor activity is necessary for the observed behavioral effects of EtOH in crayfish and will identify an EtOH dose-response relationship in this useful animal species.

ENDURE TRAINEE ABSTRACT

NAME: *JASMINE JENKINS*
Home Institution and State: Spelman College, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Psychology, May 2013
Mentors/Advisors at Home Institution: Dr. Alaine Keebaugh and Dr. Larry Young

ENDURE TRAINEE SCIENTIFIC INTERESTS
Ms. Jenkins' research interests include behavioral neuroscience and psychiatric disorders. Her current research explores the developmental role of the oxytocin receptor gene on social behavior in the socially monogamous prairie vole using shRNA and transgenic technology.

ENDURE TRAINEE CAREER GOALS AND PLAN
Upon completing her undergraduate degree at Spelman, Ms. Jenkins plans on continuing neuroscience research and entering medical school. She hopes to use her experiences and education to become a child psychiatrist to research new methods in optimizing healthy youth development.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: Emory University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Alaine Keebaugh and Dr. Larry Young

Research Project Title: Development of shRNA tech. to knockdown oxytocin receptor gene expression

In the socially monogamous prairie vole, oxytocin receptor (OXTR) expression in the nucleus accumbens (NAcc) is positively correlated with the degree of alloparental (baby-sitting like) behavior. Both juvenile and adult females with a high density of OXTR expression in the NAcc display an elevated tendency to engage in alloparental behavior, such as licking and grooming, carrying, and hovering over novel pups. Previous studies using an adeno-associated (AAV) virus to over-express the OXTR in the NAcc have suggested a developmental role of OXTR in adult alloparental behavior. In this study we develop an shRNA targeting the prarie vole OXTR (shRNAoxtr) and show that this shRNA knocks-down OXTR expression in vitro and in vivo. We hypothesize that juveniles injected with shRNAoxtr in the NAcc will display less alloparental behaviors towards pups than those individuals injected with a scrambled shRNA (shRNAsc) in the NAcc. Of the animals tested thus far, those injected with the shRNAsc enegaged in alloparental behavior for 664.4s while those injected with shRNAoxtr engaged in alloparental behavior for 173.7s. Further studies are being done to explore this difference.

ENDURE TRAINEE ABSTRACT

NAME: *TERRELL JENRETTE*
Home Institution and State: Georgia State University, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Biology, May 2013
Mentors/Advisors at Home Institution: Dr. Sarah Brosnan

ENDURE TRAINEE SCIENTIFIC INTERESTS
Mr. Jenrette's research interest encompasses a wide range of issues in behavioral neuroscience including cognition and behavior and homeostatic and neuroendocrine systems.

ENDURE TRAINEE CAREER GOALS AND PLAN
Mr. Jenrette plans on obtaining a Ph.D. in a neuroscience related field.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: Georgia State University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Sarah Brosnan

Research Project Title: Cognitively grounded Cooperative Decision making in Capuchins

Humans made a switch from the traditional approach of 'self-preservation' into 'prosocial' behavior, but the reason for this is unknown. In order to model relevant social behaviors in humans, research is often conducted with the closest living relatives, non-human primates. The current study mimics the conditions of early humans by allowing capuchin monkeys to engage in a species-typical behavior (tool use), with full control over the decision to participate and/or cooperate with a partner. This experiment uses a pair of capuchins consisting of a tool monkey and a pulling monkey. The monkeys were subjected to 6 tests, consisting of 12, 2 minute trials with varying food reward. The tool monkey was presented with a tool in the back of the primary enclosure and then had to make a decision between a mutualistic cooperative task or an independent task. In a control condition, the tool monkeys were given the option to do the cooperative task even when no partner was present. The results show that Capuchins cooperated when it was necessary to achieve the higher value food reward; however they were sensitive to their partner's presence and almost exclusively went to the solo site during partner- absent conditions. Thus, they seem to trade off the traditional notions of 'self preservation' with the costs of doing so, in a very rational way. These results imply that the evolution of prosocial behavior was the result of cognitive decision making.

ENDURE TRAINEE ABSTRACT

NAME: *EBONY MASON*
Home Institution and State: Spelman College, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Biology, May 2013
Mentors/Advisors at Home Institution: Dr. William Hopkins

ENDURE TRAINEE SCIENTIFIC INTERESTS

As an aspiring neurosurgeon, Ms. Mason is interested in researching the causes of autism and possible cures. Her interest lies in studying brain structure and function, and how it differs in individuals with autism. She is especially interested applying this research to assist people to better understand the behaviors of autistic individuals.

ENDURE TRAINEE CAREER GOALS AND PLAN

Ms. Mason plans to pursue a M.D. / Ph.D. after completing her undergraduate studies, with the ultimate goal of becoming a neurosurgeon. She believes that being a neurosurgeon will allow here to "influence, change, enhance, and save the lives of people which will require extraordinary skills and challenges." She also hopes to be a mentor for African American children in her hometown, as Ms. Mason understands the difficulties students face and the limited amount of resources that they are given to succeed. She believes that by being an active role model for students she will be able to provide youth with the resources they need to become successful individuals.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Emory University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. William Hopkins

Research Project Title: Preliminary Study of the Grey Matter Morphology of the Insula

The long term goal of this project is to examine the association between social cognition, notably self-recognition abilities, and variation in the volume and asymmetry of the grey matter cortex within the insula. Located in the insular cortex are Von Economo neurons, also called spindle cells. Previous research on spindle cells has shown that, among primates, they are only found in humans and great apes but not in monkeys. More recent studies have shown that they are also present in dolphins and elephants, leading some to suggest that spindle cells play an important function in social cognition because they are present in species living in complex social systems. In this study, we conducted preliminary quantifications of the insula from magnetic resonance images (MRI) in a sample of chimpanzees. For each subject, the raw MRI scans were re-aligned in the coronal planes using previously employed methods. Grey matter belonging to the anterior and posterior insula was manually traced in the coronal plane for each hemisphere. The analysis of this preliminary study revealed no significant sex differences in the volume or asymmetry of the insula; however, the chimpanzees showed a significant leftward asymmetry $F(1, 27) = 8.84$, $p < .002$. Further analysis indicated that the leftward asymmetry was particularly prevalent for the anterior portion of the insula. The evidence of leftward asymmetries in the anterior insular cortex is consistent with a previous study in this laboratory with an independent sample of MRI scans. Thus, asymmetries in the insula appear to be repeatable. The functional significance of this result is unclear, but in the future we will assess self-recognition in chimpanzees and correlate their behavioral performance with the measures of the insula.

ENDURE TRAINEE ABSTRACT

NAME: *DANIELLE PERRY*
Home Institution and State: Agnes Scott College, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Biology, May 2013
Mentors/Advisors at Home Institution: Dr. Keith Tansey

ENDURE TRAINEE SCIENTIFIC INTERESTS

Ms. Perry's current research investigates restorative neurology in spinal cord injury and is focused on neural plasticity and functional recovery following injury.

ENDURE TRAINEE CAREER GOALS AND PLAN

After completing her undergraduate studies, Ms. Perry intends to pursue a graduate degree in a neuroscience discipline.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Georgia State University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Kyle Frantz and Dr. Tiffany Oliver

Research Project Title: Chronic Ethanol Effects on Social Behavior in *Procambarus clarkii*

In the United States, alcohol consumption leads to more than 100,000 deaths each year. Some of these incidents result from aggressive behavior, but it is unclear whether alcohol increases aggressive behavior or whether individuals who are more aggressive choose to drink more alcohol. Our study investigates the effects of chronic ethanol (EtOH) exposure on social behavior, using an animal model with a well-characterized agonistic behavioral repertoire, *Procambarus clarkii* (red swamp crayfish). We hypothesized simply that EtOH exposure would increase aggressive behavior in crayfish. Thus, crayfish were exposed to a 400 mM EtOH bath solution one hour per day for 14 consecutive days. On alternating days after the EtOH bath, crayfish were placed in an observation tank and their social behaviors were measured using an ethogram to record frequency of attack, approach, retreat, and escape. Following EtOH exposure, hemolymph was extracted to assess circulating alcohol concentrations. Finally, crayfish nerve cords were collected to analyze 5-HT receptor protein expression, given the known role of serotonin in crayfish aggression. We predicted the following outcomes: 1) EtOH exposure would increase aggressive behavior in crayfish; 2) Hemolymph alcohol content would be detectable after EtOH exposure; and 3) heightened 5-HT receptor protein levels would correlated positively with aggressive behaviors. Although we did not observe increased aggression in EtOH-exposed animals, they were overall more socially active than controls. In addition, we were able to detect EtOH in EtOH-exposed animals. The results from our 5-HT receptor expression analysis remain inconclusive to date.

ENDURE TRAINEE ABSTRACT

NAME: *ISADORA PORTER*
Home Institution and State: Spelman College, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Biology, May 2013
Mentors/Advisors at Home Institution: Dr. Malu Tansey

ENDURE TRAINEE SCIENTIFIC INTERESTS

Ms. Porter's research interests include neurodegenerative disorders, specifically Parkinson's disease.

ENDURE TRAINEE CAREER GOALS AND PLAN

Ms. Porter's career goal is to become a neurologist who specializes in neurodegenerative disorders and spinal cord injury. She ultimately would like to work for a nonprofit hospital in a predominantly black community.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Emory University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Malu Tansey

Research Project Title: Gap Activity and Palmitoylation of Regulator of G-Protein Signaling (RGS)-10

Parkinson's disease (PD) is the most common progressive neurodegenerative movement disorder. The motor symptoms of PD (resting tremor, bradykinesia, rigidity, and postural instability) are thought to be caused by nigrostriatal dopamine depletion due to death of dopaminergic (DA) neurons of the substantia nigra pars compacta (SNpc) in the midbrain. The cause for PD onset is largely unknown; therefore, it is imperative to discover the mechanisms that underlie the development of the disease. Neuroinflammation may be involved in the progression and/or onset of PD. Indeed the GTPase-Activating Protein (GAP) activity of Regulator of G-protein signaling (RGS)-10 can protect SNpc DA neurons against inflammatory stimuli; however, it is unknown whether GAP activity of RGS10 is required for DA neuron survival. It is also unknown whether post-translational modifications of RGS10, such as palmitoylation, may promote the neuroprotective functions of the protein. Interestingly, palmitoylation of RGS10 may potentiate its GAP activity. In the studies herein, we are investigating whether GAP activity or palmitoylation of RGS10 affect its ability to act in a neuroprotective manner. Studies were conducted in mouse mesencephalic MN9D neuroblastoma cells or MN9D cells stably expressing human RGS10 to determine the effects of RGS10 on cell viability. MN9D cells were vulnerable to TNF toxicity while WT RGS10 protein was able to rescue cells from TNF insult. However, palmitoylation deficient RGS10 and RGS10 lacking GAP activity were unable to protect; therefore, it is concluded that palmitoylation and GAP activity of RGS10 may both be required for the protein to act in a protective capacity in neuronal cells.

ENDURE TRAINEE ABSTRACT

NAME: *JANIELLE TAYLOR*
Home Institution and State: Emory University, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Neuroscience, May 2013
Mentors/Advisors at Home Institution: Dr. David Weinshenker

ENDURE TRAINEE SCIENTIFIC INTERESTS

Ms. Taylor's current research investigates the role of norepinephrine in natural and drug-induced reward, particularly looking at the effects of chronic norepinephrine depletion in drug addiction.

ENDURE TRAINEE CAREER GOALS AND PLAN

Ms. Taylor plans to pursue a graduate degree in a neuroscience discipline.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Georgia State University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Kyle Frantz and Dr. Tiffany Oliver

Research Project Title: Social plasticity: the role of urine release in fight dynamics among crayfish

Although formation of social hierarchies has been explored in various species, little is known about the underlying neurobiology of the process. In the case of red swamp crayfish (*Procambarus clarkii*), aggressive behaviors are altered in the presence of a conspecific, often lead to 'fights', and eventually result in the formation of hierarchical structures that ultimately facilitate survival in social living environments. Usually physical superiority plays the key role in determining dominance over subordinate conspecifics, but more than physical size may be required to secure a dominant position. Indeed crayfish expel urine as a form of chemical communication that reveals social standing. Dominant crayfish utilize urine as a necessity for grounding and maintaining status. Thus, if the ability to urinate is blocked in a dominant crayfish, the animal too becomes subordinate in the presence of a previously encountered crayfish. This study of chemical communication in fighting crayfish employed a method of visualization using the dye Fluorescein. Our primary aim is to determine if the use of urine-associated pheromones in conjunction with agnostic behaviors is essential for maintenance of a dominance hierarchy. Thus, this study examines the establishment of a dominance hierarchy by pairs of crayfish, maintenance of the hierarchy in new dyadic interactions, and whether blocking urine release influences this maintenance of the hierarchy. We hypothesize that if urine conveys critical information about dominance status, then inhibition of urine release should facilitate role reversal within the dominance hierarchy.

ENDURE TRAINEE ABSTRACT

NAME: *NIARA TAYLOR*
Home Institution and State: Spelman College, Georgia
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology, May 2012
Mentors/Advisors at Home Institution: Dr. Robert Gross

ENDURE TRAINEE SCIENTIFIC INTERESTS

Using a rodent model of Parkinson's disease, Ms. Taylor's current research focuses on the growth of dopaminergic neurons in the substantia nigra after the injection of antibodies. She is interested in doing long term research on neurodegenerative diseases in hopes of finding a way to stop the progression of such diseases.

ENDURE TRAINEE CAREER GOALS AND PLAN

Ms. Taylor's career goal is to be a neurologist. She plans to pursue a M.D. / Ph.D. in order to practice medicine and conduct research, specifically in the progression of Alzheimer's disease.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Georgia State University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Kyle Frantz and Dr. Tiffany Oliver

Research Project Title: Cocaine in *Procambarus clarkii*: The activation of dopamine receptors

Although extensive evidence suggests that cocaine increases synaptic levels of dopamine and exerts behavioral effects through increased dopamine receptor activation in vertebrates, research on cocaine's neurochemical mechanisms in *Procambarus clarkii* and other crustaceans is limited. Given high potential of the crayfish model system to provide insight about evolution of rewarded and reinforced behaviors using drugs of abuse, such as cocaine, the present experiments were conducted to determine whether cocaine's effects on crayfish are mediated by increased activity at dopamine D1-like receptors. In this experiment, we observed social and locomotor behaviors in adult male crayfish injected with saline (controls), cocaine, and cocaine after pretreatment with a D1-like receptor antagonist (SCH23390), with each injection trial separated by a four-day isolation period. Results indicated that crayfish pretreated with the dopamine receptor antagonist before cocaine did not resemble recorded baseline behavior or that of controls. The present results lead to the conclusion that cocaine's activity may not involved dopamine D1-like receptors. Future experiments will also include a full dose-effect function with SCH23390, as well as experiments to consider the possibility that dopamine (or octopamine) receptors in crayfish are not blocked by the same antagonists as mammalian receptors, and the likelihood that additional neurotransmitter systems are involved in cocaine's behavioral effects.

ENDURE TRAINEE ABSTRACT

NAME: *TORRIEANA TRIPLETT*
Home Institution and State: Agnes Scott College, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Neuroscience, May 2013
Mentors/Advisors at Home Institution: Dr. Erin Tone

ENDURE TRAINEE SCIENTIFIC INTERESTS

Ms. Triplett is currently researching the neurobiological, emotional, and cognitive components of social anxiety disorder, and attention bias subtypes in social phobia. Her research interests include cognitive neuroscience, schizophrenia, anxiety, depression, phobias, and mental health.

ENDURE TRAINEE CAREER GOALS AND PLAN

Ms. Triplett plans to pursue a graduate degree in neuroscience.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Emory University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Yoland Smith

Research Project Title: Electron microscopic localization of GluR1 – ionotropic AMPA receptor subunit

Dysfunctions of the basal ganglia, a set of forebrain nuclei, are involved in various movement disorders such as Parkinson's disease. The basal ganglia network comprises various brain structures including the striatum, the internal and external globus pallidus, the substantia nigra pars compacta, the substantia nigra pars reticulata, and the subthalamic nucleus (STN). The neurons in the STN, the only nucleus of the basal ganglia which uses the excitatory neurotransmitter glutamate, become abnormally hyperactive in Parkinson's disease, which is responsible for some of the main symptoms of Parkinson's disease. Although the exact source of this increased activity remains unknown, it may be due to a dysregulation of neurotransmission at glutamatergic synapses onto STN neurons. The STN receives significant excitatory glutamatergic inputs from the cerebral cortex, thalamus and brainstem. Previous studies in our laboratory have shown that both the cortical and sub-cortical (thalamus and brainstem) glutamatergic inputs to the STN degenerate in 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP)-treated parkinsonian monkeys. Thus, we hypothesize that this degeneration of glutamatergic inputs to the STN may alter the cellular and subcellular localization of glutamate receptors in STN neurons. To address this issue, we undertook an electron microscopic study to compare the subcellular localization of the GluR1 subunit of the fast acting ionotropic AMPA glutamate receptor (AMPA-GluR1) between the STN of normal and parkinsonian monkeys. Using an antibody raised against the AMPA-GluR1 subunit, we performed standard light and electron microscopy immunohistochemical procedures on normal and parkinsonian monkey STN tissue.

ENDURE TRAINEE ABSTRACT

NAME: *CHRIS VAUGHN*
Home Institution and State: Georgia State University, Georgia
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Biology, May 2013
Mentors/Advisors at Home Institution: Dr. Mukesh Dhamala

ENDURE TRAINEE SCIENTIFIC INTERESTS
Mr. Vaughn's combined interests in technology and anatomy has led to a desire to become involved with bioengineering and he is currently involved in multisensory integration experiments.

ENDURE TRAINEE CAREER GOALS AND PLAN
Mr. Vaughn plans to obtain a Ph.D. in bioengineering upon completion of his undergraduate studies.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: Georgia State University Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Kyle Frantz and Dr. Tiffany Oliver

Research Project Title: Cocaine in Crayfish: Testing a Role for Dopamine Receptors

Although extensive evidence suggests that cocaine increases synaptic levels of dopamine and exerts behavioral effects through increased dopamine receptor activation in vertebrates, research on cocaine's neurochemical mechanisms in *Procambarus clarkii* and other crustaceans is limited. Given high potential of the crayfish model system to provide insight about evolution of rewarded and reinforced behaviors using drugs of abuse, such as cocaine, the present experiments were conducted to determine whether cocaine's effects on crayfish are mediated by increased activity at dopamine D1-like receptors. In this experiment, we observed social and locomotor behaviors in adult male crayfish injected with saline (controls), cocaine, and cocaine after pretreatment with a D1-like receptor antagonist (SCH23390), with each injection trial separated by a four-day isolation period. Results indicated that crayfish pretreated with the dopamine receptor antagonist before cocaine did not resemble recorded baseline behavior or that of controls. The present results lead to the conclusion that cocaine's activity may not involved dopamine D1-like receptors. Future experiments will also include a full dose-effect function with SCH23390, as well as experiments to consider the possibility that dopamine (or octopamine) receptors in crayfish are not blocked by the same antagonists as mammalian receptors, and the likelihood that additional neurotransmitter systems are involved in cocaine's behavioral effects.

ENDURE TRAINEE INFORMATION AND RESEARCH ABSTRACTS
BP-ENDURE AT HUNTER COLLEGE

HUNTER COLLEGE
Principal investigator: *Dr. Vanya Quinones-Jenab*
Partner institution: New York University

PROGRAM DESCRIPTION: Hunter College of the City University of New York (CUNY) recognizes that increasing the number of highly qualified neuroscientists from these underrepresented populations is integral to our future as an academic and research institution. Hunter College aims to increase the number of well-trained, diverse neuroscientists. The overall goal of this application is to develop a neuroscience training program at Hunter that will encourage and prepare students from diverse backgrounds to enter into and succeed in PhD programs in the neurosciences.

Hunter has developed a research-educational partnership with four outstanding T32-awarded universities-New York University, Brown University, University of Michigan, and Vanderbilt University. This partnership will expose 12 BP-ENDURE-trainee students per year to a research-intensive curriculum and an environment of excellence and active research. Moreover, because of the diversity of the proposed mentors, students will be exposed to a broad spectrum of researchers, including basic neuroscientists interested in central nervous system (CNS) issues and applied neuroscientists from the areas of clinical, social, health, developmental, and cognitive neuropsychology.

To achieve our goals, the following aims are proposed: (1) To develop an outstanding group of undergraduate students with diverse backgrounds dedicated to neuroscience research; (2) To provide scientific skill and research experiences to our trainees through research placement with actively funded neuroscientists; (3) To develop academic development and curriculum enhancement activities rooted in the student's research activities; (4) To maintain an effective Administrative Core to support our students' needs and development.

Our measurable objectives during the requested funding period include: (1) 85 to 90% acceptance of trainees to graduate school programs in neuroscience; (2) improvement of our students in quantitative skills and academic achievements as well as their (3) scientific writing and oral presentations. Outcome from evaluations of the Steering Committee, the external evaluator, and the Administrative Core will guide future modifications to our training initiatives.

ENDURE TRAINEE ABSTRACT

NAME: *HEYSOL C. BERMUDEZ CABRERA*
Home Institution and State: Hunter College, New York
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Biological Sciences, June 2013

ENDURE TRAINEE SCIENTIFIC INTERESTS

In the neuroscience field, I am interested in studying the underlying causes of neurodegenerative diseases. During my summer research experience, I took a more behavioral approach to study Parkinson Disease. We studied individuals with Parkinson Disease by assessing their motor performance on certain tasks. In future research as a BPEndure student, I am will be studying the molecular mechanisms of myelination in neuron cells, in order to understand how the interruption of such processes can cause neurodegenerative diseases.

ENDURE TRAINEE CAREER GOALS AND PLAN

I am graduating with a degree in Biological Sciences. However, I will be pursuing my Ph.D. in neuroscience. During my graduate research, I am interested in combining genetics with behavioral research in order to study how certain genotypes may or may not affect the severity of a particular neurological disease.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Michigan
Mentors/Advisors at ENDURE Summer Research Experience Institution: Nathan Miller, PI: Dr. Rachel Seidle

Research Project Title: Internal clock in individuals with Parkison Disease

Spontaneous Motor Tempo (SMT) is considered a direct measure of an internal clock mechanism thought to be responsible for maintaining rhythmic movements. Individuals with Parkinson Disease (PD) have a dysrhythmic motor performance as well as a decrease in volume and slowness of speech. Previous research has assumed that individuals with PD differ from healthy controls in hand and speech SMT. We tested individuals with PD (M = 65 years old) and controls (M = 66 years old) on two measures of SMT – one involving hand tapping and the other involving repetition of the syllable "Pa" at their preferred rate. Individuals with PD had faster Hand (M=398 msec, SE= 78 vs M=531 msec, SE= 72) and Speech SMT (M= 453, SE= ± 87, vs. M= 592, SE= ±79) than did controls. There was no significant difference between the speech and hand means (p= .43). There was a statistically significant relationship between Hand SMT and Speech SMT ($r = .85$; $p < .01$), suggesting a similar mechanism underlying SMT for both speech and hand movements. Improved knowledge on this topic may assist in the development of new therapies for individuals with PD to ameliorate symptoms such as Bradykinesia or slow speech.

ENDURE TRAINEE ABSTRACT

NAME: *DAANISH CHAWALA*
Home Institution and State: New York University, New York
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Neural Science, May 2013

ENDURE TRAINEE SCIENTIFIC INTERESTS

The trainee is interested in Pavlovian fear conditioning -- specifically, the extinguishing of acquired fear through both neuropharmacological and "natural," non-invasive methods as it applies to post traumatic stress disorder and other anxiety disorders in adults.

ENDURE TRAINEE CAREER GOALS AND PLAN

The trainee hopes to pursue a dual M.D. /Ph.D. degree and continue to perform clinical research on the management and treatment of anxiety disorders.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Michigan
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. K Luan Phan and Dr. Christine Rabinak

Research Project Title: Behavioral study of fear and its implications on skin conductance recordings

We conducted a study using a within-subjects design, coupling a standard Pavlovian fear extinction paradigm and simultaneous skin conductance response (SCR) recording in 10 healthy adult volunteers and tested extinction retention 24 hours after extinction learning. During fear acquisition subjects were presented with three different colored squares (conditioned stimulus, CS) and two of the squares (CS+s) were paired with an aversive noise burst (unconditioned stimulus, US), while the third square (CS-) was never paired with the US. Subjects showed an increase in SCR to the CS+s and maintained low SCR levels to the CS-. Twenty-four hours after fear conditioning, one CS+ was extinguished (CS+E) while the other CS+ was not (CS+U). At the beginning of the extinction session subjects showed high SCR, indicative of successful fear conditioning from the previous day, but over the course of the extinction session SCR levels gradually decreased to the CS+E. Twenty-four hours after fear extinction, subjects repeatedly presented with the CS+E and CS+U in the absence of the US to assess success of extinction recall on SCR. Subjects showed lower SCR to the CS+E than compared to the CS+U, suggesting that successful within-session extinction was successfully maintained 24 hours after extinction learning.

ENDURE TRAINEE ABSTRACT

NAME: *AYESHA CHOWDHURY*
Home Institution and State: Hunter College, New York
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Biochemistry/ Psychology, June 2013
Mentors/Advisors at Home Institution: Eric Klann, Ph.D. and Aditi Bhattacharya, Ph.D.

ENDURE TRAINEE SCIENTIFIC INTERESTS

Under the BP-ENDURE program I have been able to conduct research looking at the molecular and synaptic changes in an animal model after learning. The program has allowed me to focus and explore my interests on how behavior and environment regulate molecular pathways in the brain.

ENDURE TRAINEE CAREER GOALS AND PLAN

With the mentor-ship and training that I have received thus far, I hope to gain a Ph.D. in Neuroscience and become a research professor.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Brown University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Mark Johnson and Gilad Barnea, Ph.D.

Research Project Title: Generation of *Drosophila Melanogaster* Strains with Fluorescent timer Reporter Genes

The GAL4/UAS system is a tool for investigating gene expression in *Drosophila melanogaster*, a genetically tractable organism. This system is commonly used to drive expression of a reporter gene by placing GAL4 under the control of specific promoters. A novel UAS reporter allele was constructed to monitor the timeline of GAL4 activation in neurons as well as examine their dendritic and axonal arborizations. The reporter gene used is encoded with a mutated version of the fluorescent protein mCherry that changes from an immature blue form to a mature red form. Variations made in the m-Cherry gene sequence lead to fluorescent timers (FTs) with slow, medium or fast maturation rates for mCherry. These constructs were first tested *in vitro* by co-expressing them with GAL4 in HEK293T cells. The three UAS-FT-IRES-mGFP constructs were then injected into *Drosophila* embryos (~10).Transgenic flies were crossed with balancer lines to map their insertions and establish balanced stocks. The FT reporter lines will be tested in vivo by crossing these flies to hsGAL4 flies. After heat shock of the resulting embryos, larvae should change from blue to red fluorescence over time. These constructs can then be used to track the activation of select receptors or DNA sequences.

ENDURE TRAINEE ABSTRACT

NAME: *ADEOLA HAREWOOD*
Home Institution and State: Hunter College, New York
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology, 2012
Mentors/Advisors at Home Institution: James Gordon, Ph.D.

ENDURE TRAINEE SCIENTIFIC INTERESTS

I am interested in studying the relationship between visual and audio perception and mental illness by examining the neural underpinnings of differences in perception among people with mental illnesses and how those differences are related to behavioral symptoms.

ENDURE TRAINEE CAREER GOALS AND PLAN

I would like to pursue a career as a researcher and professor. This path would allow me to conduct research in the area that I am interested in and share my knowledge with students.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Vanderbilt University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Mark Wallace, Ph.D.

Research Project Title: How critical bandwidth in vision is affected by spatial frequency and noise level

Sensory systems are typically structured as a series of "filters" that selectively shape information as it makes its way through the sensory processing hierarchy. Various methods have been developed to examine the filtering characteristics within sensory systems, including critical band tasks that seek to determine the range of surrounding frequencies that can mask a target stimulus. This study examined the utility of critical band tasks for characterizing visual filtering by determining how spatial frequency and noise level would impact difference thresholds in detecting a visual target. Eleven participants were asked to identify a gabor patch embedded in a notched noise masker. The threshold for each participant was acquired as a function of bandwidth for two contrast noise levels (high and low) and at high (10 c/d) and low (3 c/d) spatial frequencies. Spatial frequency, noise level, and bandwidth each had a significant effect on threshold. There was a marginal Spatial Frequency x Noise x Bandwidth interaction, and a significant interaction between each factor and bandwidth, with each factor having an effect on the critical band. Such interactions must be considered in experiments examining critical band processes, an increasingly valuable experimental tool for the analysis of sensory filtering.

ENDURE TRAINEE ABSTRACT

NAME: *DAVID KATTAN*
Home Institution and State: Hunter College, New York
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology, May 2012
Mentors/Advisors at Home Institution: Dr. Douglas Mennin

ENDURE TRAINEE SCIENTIFIC INTERESTS
I am interested in investigating the biological predispositions to coping mechanisms, as well as the biomarkers that may help predict effectiveness of psychotherapy treatments. In accordance with the biomedical trend of moving towards personalized medicine, I would like to conduct neuroscience research that could be applied and translated into personally-tailored mental health interventions.

ENDURE TRAINEE CAREER GOALS AND PLAN
Ultimately, I would like to pursue a neuroscience research career in a college/university setting. In addition to facilitating my own research career, working in an academic setting will allow me to teach and mentor young students on their way to purse research careers.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: Vanderbilt University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Jennifer Blackford

Research Project Title: Tracking the Eyes of the Beholder: Temperament differences in scanning patterns of faces

ENDURE TRAINEE ABSTRACT

NAME: *SAIMA MACHLOVI*
Home Institution and State: Hunter College, New York
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: June 2013
Mentors/Advisors at Home Institution: Dr. Maria Figueirdo-Pereira

ENDURE TRAINEE SCIENTIFIC INTERESTS

I have always been interested in science more specifically in neuroscience. Being a rising senor at Hunter College and being in the BP-Endure program, funded by NIH, allows me to meet like minded people in my field, which broadens my perception of my own field. It encourages me to learn more scientific techniques and to become enthusiastic about graduate school by participating in a research labs and conferences.

ENDURE TRAINEE CAREER GOALS AND PLAN

I am deeply interested in the neuropathology of disease. Eventually I want to get my doctorate and pursue a research career in neuroscience. I feel research will help the world grasp these topics and if I am the one doing research in something I love then all the better. I plan to pursue a Ph.D. program in Neuroscience to make a positive impact on the lives of people with neurodegenerative diseases and an impact on their families.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Brown University

Research Project Title: Neuronal induction of the Heat shock protein 70 as a possible mechanism to overcome tau-translational modification induced by prostaglandin J2

Alzheimer's disease (AD) is characterized by inflammation and the accumulation of ubiquitinated proteins in abnormal inclusions. Neurofibrillary tangles containing tau are one of the major hallmarks of AD. Molecular chaperones are a large group of proteins which assist other proteins to their correct assembly. In particular, heat shock proteins (Hsp) facilitate synthesis and folding of proteins throughout the cell and they may prevent the formation of these aberrant inclusions due to their ability to avert protein aggregation and promote proper protein folding. Our studies focus on the molecular chaperones Hsp 70 and Hsp 90 because they are the major chaperone systems that protect cells against protein unfolding and aggregation. We report that a novel Hsp 90 inhibitor, induces the expression of Hsp 70, and reduces the levels of the aggregate-prone form of tau in rat E18 primary cortical neurons treated with protaglanding J2. We propose that up-regulation of the Hsp 70 system could help avoid the deleterious effects of tau aggregation and thus be used to prevent/treat AD.

ENDURE TRAINEE ABSTRACT

NAME: *ARIEL MEILICH*
Home Institution and State: Hunter College, New York
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: May 2013
Mentors/Advisors at Home Institution: Elizabeth Phelps, Ph.D.

ENDURE TRAINEE SCIENTIFIC INTERESTS

My interest in neuroscience revolves around the way people make decisions. To me, this query poses several questions, such as what drives our attribution of value on possible choices when making decisions, what are the neural correlates involved in choice behavior, and how cognition and emotion compete in such processes.

ENDURE TRAINEE CAREER GOALS AND PLAN

I am currently completing my undergraduate degree at Hunter College, while working at the Phelps Lab at NYU. I plan to attend graduate school upon completion of my degree, possibly for a doctorate in cognitive neuroscience. I will focus on neuroeconomics, decision-making, and motivation.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Brown University
Mentors/Advisors at ENDURE Summer Research Experience Institution: David Badre, Ph.D.

Research Project Title: The Role of Reinforcement Learning in Controlled Retrieval

Dopamine projections to the striatum and frontal cortex play an important role in behavior modulated by reward. Unpredicted rewards trigger the phasic response of dopamine neurons, whereas predicted rewards that fail to arrive inhibit these neurons below baseline rates, and rewards that match the prediction do not affect the firing rate. In this study, we focus on reward maximizing behavior in humans as modeled by Reinforcement Learning (RL). After shallow encoding of concrete nouns, participants (12 18-35 year olds, 6 females) performed an unforewarned computer-based memory test. They were presented with an equal amount of new and previously seen concrete nouns, one at a time. We sought to alter recognition memory discernment by probabilistically giving inaccurate positive feedback for either misses or false alarms, reinforcing 'new' and 'old' decisions, respectively. False positive feedback biased participants' future choices, shifting their decision criteria from neutral toward the reinforced condition. These findings suggest that people can exploit environmental cues to guide their decision-making, without being aware of it.

ENDURE TRAINEE ABSTRACT

NAME: *MAHFUZUR RAHMAN MIAH*
Home Institution and State: New York University, New York
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Neural Science, 2013
Mentors/Advisors at Home Institution: Dr. Chiye Aoki

ENDURE TRAINEE SCIENTIFIC INTERESTS

In general, I am interested in cognitive neuroscience and neuroimaging to see which parts of the brain become activated in relation to human behavior. In particular, my interest lies in the neurological underpinnings of language acquisition and processing, especially in bilinguals. I am intrigued by questions such as how the brain stores two words of two languages to reference the same physical (or abstract) thing or how the brain is able to switch between two different language structures. I hope to be able to study these questions under the mentorship of BP-ENDURE.

ENDURE TRAINEE CAREER GOALS AND PLAN

My long-term career goals include having a balance between the role of professor and researcher at an institution that gives priority to both mentoring students and progressing research. Even further than that, I hope to be involved in politics so that there are more scientists who are shaping the laws that enable or restrict the progress of research. I hope that the ENDURE will help to fashion me in a prime candidate for a Ph.D. program that will increase my knowledge base and give me sufficient research training.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Vanderbilt University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Jeremy Veenstra-VanderWeele

Research Project Title: Pursuit of the Model Mouse: Behavioral Studies of Autism-Associated SERT Ala56 Knock-In Mice

Autism spectrum disorder (ASD) is a heritable condition characterized by abnormal social behavior, restricted repetitive behavior, and communication deficiencies. We examined a Serotonin Transporter Gene (SERT) Gly56Ala knock-in mouse, the same genetic mutation associated with autism in humans, to better understand the causes and characteristics of these changed behavioral domains. Behavioral assays were performed on 16 mutated and 20 wild type mice to observe differences. The tube test for dominance (in which two mice enter two sides of a tight tube and eventually one backs out, with the mouse left in the tube declared the winner) was used to test for abnormalities in social behavior between the two genotypes. Preliminary data shows a significant amount of wins ($p < .01$) for the wildtype mice compared to the mutant mice, representing abnormal social behavior in the mutant mice. Future studies will extend to other measures of social, communication, and repetitive behavior, as well as compare behavior in male and female mice. Further, we hope to identify changes in brain regions that underlie the observed behaviors. We hope that this genetic mouse model will allow us to better understand the causes of ASD and to potentially develop novel treatments.

ENDURE TRAINEE ABSTRACT

NAME: *TEMIDAYO OREDERU*
Home Institution and State: Macaulay Honors College at Hunter College, New York
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Psychology, 2013

ENDURE TRAINEE SCIENTIFIC INTERESTS

Temidayo is interested in the neural circuitry underlying individual differences that lead to susceptibility to addiction and subsequent addictive behaviors. Specifically, decision-making among individuals who suffer from addiction and the ability to self-regulate unwanted impulses.

ENDURE TRAINEE CAREER GOALS AND PLAN

Temidayo looks forward to graduating with a B.A. in Psychology, with a concentration in Behavioral Neuroscience and Biology and Chemistry minors. She plans to pursue an M.D. / Ph.D. and ultimately work as a physician-investigator in a research institute or academic medical center.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: New York University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Candace M. Raio and Dr. Elizabeth Phelps

Research Project Title: Stress and the Regulation of Conditioned Fear

Cognitive restructuring therapy (CRT) is an emotion regulation treatment for anxiety disorders that relies on the recruitment of prefrontal regions critical to fear inhibition. These neural regions are major targets of stress hormones, and stress interferes with cognitive tasks dependent on the prefrontal cortex (PFC). This study examined whether stress would compromise an individual's ability to regulate affective responses by inhibiting PFC functioning. Sixteen participants (7 female), ages 18-24 (M=21.76 years) underwent a Pavlovian fear-conditioning paradigm, whereby one conditioned stimulus (CS+) was paired with a wrist shock on a subset of trials while the other (CS-) was never paired with shock. This was followed by a training session modeled after CRT, whereby participants learned to restructure their thoughts concerning the fear-conditioning session to down-regulate their emotional responses. Participants returned a day later and were either exposed to a moderate stress-inducing task or a no-stress control task before a second fear conditioning session. The no-stress group showed diminished conditioned responding on day 2 ($t(7) = 0.04$, $p < 0.05$). The stress group showed impairments in employing such strategies, resulting in comparable conditioned responding on day 2 ($t(7) = 0.44$, *ns*). The stress accompanying fearful situations may reduce the ability to adequately cope with fear.

ENDURE TRAINEE ABSTRACT

NAME: *MARIEL B. RIOS*
Home Institution and State: New York University, New York
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Neural Science
Mentors/Advisors at Home Institution: Dr. Chiye Aoki

ENDURE TRAINEE SCIENTIFIC INTERESTS

I am interested in investigating disorders of the brain, especially developmental disorders. Disorders that can be investigated at the molecular level and have a psychological component are of particular interest.

ENDURE TRAINEE CAREER GOALS AND PLAN

After completing my B.S., I plan on working for one to two years in a biomedical lab, ideally participating in the NIH Postbac IRTA program. I will further my career by participating in a graduate program focused on neuroscience. After completing my doctoral degree, I intend on pursuing an academic based career such as becoming a professor and being the primary investigator of a lab.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: Brown University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Mark Zervas and Elizabeth Normand

Research Project Title: The effects of Rapamycin Treatment on Tsc1-Deficient Neurons in the Thalamus

Tuberous sclerosis (TS) includes epilepsy, cognitive deficits, cortical tubers, and other structural abnormalities attributed to mutations in either or both genes TSC1 and TSC2, which together form a compound that regulates the mammalian target of rapamycin (mTOR) pathway, suppressing cell growth and transcription. The thalamus may play a role in TS pathology. We targeted Tsc1 gene inactivation to the developing thalamus by employing a CreER/loxP system combined with a conditional Tsc1 allele (Tsc1fl). Tsc1fl was inactivated at embryonic day (E)12.5, during a shift in thalamic neuron development from a proliferative to differentiated state. Mutant mice were treated with rapamycin, an mTOR pathway inhibitor, upon displaying the behavioral phenotypes of excessive grooming and spontaneous seizures. Cellular analysis of 5 mutant and 3 control brains was performed using ribosomal phospho-S6 (pS6, a downstream mTOR pathway product) as an indicator of Tsc1-deficiency and MAP2 (microtuble-associated protein) to assess changes in thalamic cell size. Three mutant brains were treated with rapamycin and immediately sacrificed, and two were sacrificed 1.5 months post-treatment. Rapamycin treatment decreased pS6 levels in mutant cells. Rapamycin treatment followed by a 1.5 month delay until intracardial perfusion increased pS6(240) expression, greater than when end of treatment is immediately followed by analysis.

ENDURE TRAINEE ABSTRACT

NAME: *JIMENA SANTILLAN*
Home Institution and State: Hunter College, New York
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology, Spring 2012
Mentors/Advisors at Home Institution: Dr. Sandeep Prasada (Hunter College) and Dr. Jennifer Mangels (Baruch College)

ENDURE TRAINEE SCIENTIFIC INTERESTS
The cognitive and neural process underlying successful learning across development.

ENDURE TRAINEE CAREER GOALS AND PLAN
Pursue a Ph.D. program in Cognitive Neuroscience with the goal of applying educational cognitive neuroscience research to evaluate and design effective intervention programs to address educational disparities.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: Vanderbilt University
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Bruce McCandliss

Research Project Title: Psychophysical and Electrophysiological Brain Responses to Speech Sounds Across Development: Native Language Experience Shapes Perception

Native-language neural commitment theory poses that neural networks become more efficient at processing native language patterns, interfering with the learning of foreign languages. The present study investigated the role of language experience in shaping sensitivity to native and non-native speech sounds by examining psychophysical and electrophysiological measures in a Chinese-English cross-language design. Adult native English speakers and native Chinese speakers were asked to discriminate native and non-native phonetic contrasts on an English 10-level continuum and a Chinese 11-level continuum. Native English speakers (n=19) reliably discriminated English contrasts ($p < 0.01$), but performed at chance when asked to discriminate Chinese contrasts. Conversely, Chinese speakers were able to reliably discriminate Chinese contrasts. Given their validity to measure perceptual sensitivity at the behavioral level, the same phonetic contrasts were used in a mismatch negativity (MMN) paradigm examining the pre-attentive event-related potential (ERP) response to deviant auditory stimuli that has been used as an index of expertise in speech perception. Preliminary analyses of the topography of the MMN show the predicted strong left-lateralized response to native phonetic contrasts for both English and Chinese speakers, but not to non-native contrasts, indicating that native contrasts activate the brain hemisphere specialized for language processing.

ENDURE TRAINEE ABSTRACT

NAME: *YASMIN ZAKINIAEIZ*
Home Institution and State: Hunter College, New York
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Biology/ Psychology, June 2013
Mentors/Advisors at Home Institution: Dr. Cheryl F. Harding and Dr. Mariann Weierich

ENDURE TRAINEE SCIENTIFIC INTERESTS

With over two years of research experience in the field of neuroscience, I've quickly grown to love this evolving field. However, it is difficult for me to narrow my interests in the field to one specific area. I am interested in clinical, behavioral, cognitive, and translational neuroscience. Recently, I have become fascinated by the world of neuroimaging.

ENDURE TRAINEE CAREER GOALS AND PLAN

I intend to graduate in June of 2013 and attend graduate school to obtain a Ph.D. degree in neuroscience. Ultimately, I wish to work in academia and marry my interests in biology, psychology, research and education. I intend to work independently post-graduate school at a university conducting my own research and teach biopsychology, neuroanatomy and other neuroscience-related courses.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Michigan
Mentors/Advisors at ENDURE Summer Research Experience Institution: K. Luan Phan and Stephen Maren

Research Project Title: Ь^{9}-THC Reduces Connectivity Between Default Mode Network Regions During Non-Task Periods Within an Emotion Task

Neuroimaging has identified a network of interacting brain regions - PCC, IPL and vmPFC - coactivated at rest. This default mode network (DMN) shows greater activity during rest than during cognitive tasks. Cannabinoids such as marijuana have been shown to modulate neural network function. However, the effects of marijuana on DMN connectivity are unknown. We expected modulation in DMN activation during non-task due to the affective and cognitive effects of Ь^{9}-tetrahydrocannabinol (Ь^{9}-THC), which may enhance focus on internal tasks such as memory retrieval and future envisioning. Fifteen healthy right-handed adult mild cannabis users underwent fMRI imaging following administration of Ь^{9}-THC and placebo while viewing pleasant, unpleasant, and neutral pictures from the IAPS ("task") interspersed with non-emotional pixelated pictures ("non-task"). Activity in PCC and IPL was greater in non-task conditions. There was no main effect of drug. PPI analysis using a PCC seed revealed connectivity between the three regions of the DMN. Greater PCC connectivity with vmPFC was found when subjects were on placebo than Ь^{9}-THC (p=0.008), indicating that Ь^{9}-THC may reduce connectivity between regions of the DMN. These findings provide further understanding of the effects of THC on emotion processing which may have implications for brain changes in drug addiction.

ENDURE TRAINEE INFORMATION AND RESEARCH ABSTRACTS

BUILDING RESEARCH ACHIEVEMENT IN NEUROSCIENCE (BRAiN)

UNIVERSITY OF COLORADO DENVER
Principal Investigator: *Dr. Diego Restrepo*
Partner Institution: New Mexico State University

PROGRAM DESCRIPTION: Student Training through Institutional Partnerships will bridge the Neuroscience research participation gap by preparing diverse undergraduates in the Rocky Mountain and Southwest Region for successful entry to Neuroscience Ph.D. programs.

BRAiN unites preexisting formal research and education programs at diverse institutions: the Neuroscience Graduate Program at the University of Colorado Denver in the Anschutz Medical Campus (NSP at UCD-AMC), home to a T32 Neuroscience Training Grant; the RISE to Excellence biomedical research education program at New Mexico State University (NMSU), a Hispanic serving minority institution; and the undergraduate Brain and Behavior program of the Department of Psychology at the University of Colorado Denver downtown campus (UCD-DT). BRAiN aspires to expand through developmental partnerships with Colorado State University- Pueblo and other colleges in the region.

Broad participation in the Ph.D. Neuroscience/Behavior pipeline will be enabled through pursuit of three specific aims: (1) Recruitment of 67 BRAiN Scholars from diverse demographic groups that are nationally underrepresented in biomedical and behavioral neuroscience research; (2) Development of the Neuroscience/Behavior research expertise and professional skills of BRAiN Scholars; (3) Retention of BRAiN Scholars in Neuroscience/Behavior research through enrollment in postgraduate programs.

BRAiN will provide intensive training that combines mentored independent research with student development of a rich knowledge base in Neuroscience core concepts. Curriculum integration will be achieved through a common Neuroscience Seminar Series and a Neuroscience Core Course. Emphasis will be placed on enhancement of mentorship skills through activities such as the Neuroscience Mentor Academy where faculty will meet to discuss student training, program evaluation, and curriculum reform. Taken together, proposed activities will provide an integrated research and professional development experience across multiple sites that leverages 21st century resources for scientific investigation and is responsive to practical aspects of contemporary student life.

ENDURE TRAINEE ABSTRACT

NAME: *JAMES BISHOP*
Home Institution and State: University of Colorado Denver, Colorado
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology
Mentors/Advisors at Home Institution: Dr. Sondra Bland and Dr. Diego Restrepo

ENDURE TRAINEE SCIENTIFIC INTERESTS
I am interested in neuroscience especially as it relates to ethics, developmental biology, personality, executive functioning, genetics, and perception. Primarily I am interested in how neural firing creates behavior, especially conscious behavior. For instance, current research shows that neural firing often proceeds before individuals are consciously aware of a behavior, say, moving their hand. This supports many conclusions, one being that there is no free will (and so has philosophical implications as well as scientific ones).

ENDURE TRAINEE CAREER GOALS AND PLAN
I plan on receiving my bachelor's degree at University of Colorado Denver and then moving on to a Ph.D. program at either UC Davis or Colorado State University, both of which have excellent neuroscience programs. I plan on doing research in neuroscience while I am completing my Ph.D. at those institutions.

ENDURE Trainee Summer Research Experience
ENDURE Summer Research Experience Institution: University of Colorado Anschutz
Mentors/Advisors at ENDURE Summer Research Experience Institution: Christi Rossi

Research Project Title: FGF signaling and its Effect on Neural Crest Cell Migration in Zebrafish Models

Neural crest cells (NCCs) are a population of multipotent cells that form early in embryonic development and then migrate and give rise to cells in the nervous system, pigment cells, and facial cartilage and bone. Fibroblast Growth Factors (FGF's) are a family of growth factors associated with many developmental functions and are hypothesized to direct NCC migration. Our preliminary studies inhibiting FGF signaling at the receptor level results in aberrant neural crest cell migration and a shortened AP axis. AP axis defects may be mediating the neural crest cell effect. Experiments in which SU5402 is inhibited from 18-24 hpf and 24-30 hpf can ask more specifically how FGF signaling affects NC migration by inhibiting it during a time when the A/P axis has already formed.

ENDURE TRAINEE ABSTRACT

NAME: *JUSTIN BRANTLEY*
Home Institution and State: New Mexico State University, New Mexico
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Mechanical Engineering, December 2011
Mentors/Advisors at Home Institution: Dr. Elba Serrano

ENDURE TRAINEE SCIENTIFIC INTERESTS

I am interested in research at the interface of engineering and neuroscience. I would like to specialize in the study of the brain/machine interface and possibly neuroprosthetics and robotics.

ENDURE TRAINEE CAREER GOALS AND PLAN

After graduating with a B.S. in Mechanical Engineering, I plan to apply to a bioengineering graduate program with hopes to integrate principles of mechanical engineering and neuroscience. I am currently preparing an application for an NSF Graduate Fellowship.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Colorado Anschutz
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Emily Gibson and Dr. Diego Restrepo

Research Project Title: Measurement of Ca^{2+} Dynamics and Localization within Olfactory Sensory Neuron Cilia

The objective of my project was to analyze the behavior of Ca^{2+} ions within olfactory sensory neuron (OSN) cilia when exposed to an odorant or a stimulant. During the process of odor transduction, volatile odiferous molecules bind to the sensory neurons that line the back of the nose. Much of the transductory activity appears to be restricted to the thin cilia that extend from the olfactory knob into the mucus layer of the epithelium. In this system, each cilium evidently operates as an individual organelle with the necessary equipment to successfully amplify and regulate odor transduction with high sensitivity. Recent evidence suggests that the localization of Ca^{2+} into ciliary nanodomains (nanoscale regions of high Ca^{2+} concentration) may aid in the regulation of olfactory transduction. The objective of this project was to employ high-resolution microscopy and electro-olfactogram measurements of the olfactory response to assess the existence of spatially distributed distinct molecular domains within the ciliary membrane. In addition, we used computational methods to analyze how modification of Ca^{2+} diffusion through addition of different exogenous buffers would affect the response to odors. Through these methods, we assessed the involvement of calcium nanodomains in olfactory transduction.

ENDURE TRAINEE ABSTRACT

NAME: *ERIN CHRISTENSEN*
Home Institution and State: University of Colorado Denver, Colorado
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology/ Biology Minor
Mentors/Advisors at Home Institution: Dr. Sondra Bland

ENDURE TRAINEE SCIENTIFIC INTERESTS

Throughout my education in the sciences, particularly in the neurosciences and biology, I have developed an interest in psychotropic medications and how we use them to manipulate behavior. My coursework also sparked an unexpected interest in chemistry and physics, as I constantly seek the most fundamental answers I can find. Additionally, my current project in Dr. Diego Restrepo's lab sparked a new interest in the genetic basis of psychiatric disease, as well as a specific interest in the implications of alpha-7 nicotinic acetylcholine receptors in schizophrenia. I have also become interested in pluripotent stem cells and their relevance to the study and treatment of cognitive disorders.

ENDURE TRAINEE CAREER GOALS AND PLAN

After completing my internship at the University of Colorado, I would like to work as an intern in the biotechnology industry in some capacity to gain exposure to research outside of academia. After completing my B.S., I hope to enter into a Ph.D. program in Neuroscience, and after obtaining a Ph.D., I will either seek a job doing research at a biotechnology company or a job as professor at a university so that I can both teach and conduct research.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Colorado, Anschutz Medical Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Diego Restrepo, Ernesto Salcedo

Research Project Title: Localization and Postnatal Migration of α7-Nicotinic Acetylcholine Receptor-Expressing Cells in the Olfactory Bulb

α7-nicotinic acetylcholine (α7) receptors are ligand-gated cation channels present in regions throughout the brain, including the olfactory bulb (OB). These receptors have been implicated in multiple endophenotypes of schizophrenia, including our findings implicating decreasedα7 in deficits in olfactory detection and discrimination (Hellier et al., 2010). We have shown that α7 expression is localized to the glomerular layer of the adult OB by α-bungarotoxin (α-BGT) autoradiography, and that mice with decreased expression of α7 have reduced olfactory discrimination. Here we localized Green Fluorescent Protein (GFP) in adultα7-GFP mice to cells innervating glomeruli. In addition, characterization of GFP expression in postnatal mice suggested that α7-GFP positive cells migrate from the granule cell layer to the glomerular layer during development. However, GFP fluorescence intensity was low, making it possible that we missed a subset of α7-expressing cells. In an effort to verify α7 localization and the postnatal α7 migration phenomenon in developing mice, we tailored an *in situ* hybridization (ISH) protocol to tag the mRNA responsible for the translation of the α7 receptor (α7RR) in the OBs of mice at P60.

ENDURE TRAINEE ABSTRACT

NAME: *ISAAC DEL RIO*
Home Institution and State: New Mexico State University, New Mexico
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology / Sociology, Spring 2012
Mentors/Advisors at Home Institution: Dr. Jonathan Schwartz

ENDURE TRAINEE SCIENTIFIC INTERESTS

I am interested in Behavioral Neuroscience and, in particular, psychoneuroimmunology. I am interested in understanding how social interaction affects human behavior and functioning of the brain. Moreover, I am fascinated in how these alterations affect the nervous system and immune status functioning. I believe that multiculturalism, socioeconomic status, social deprivation, and other socially impacted aspects of an individual, play an important role in behavior and immunity. Ultimately, these interests are tightly bound together by the principle of understanding the diversity of bodily response to behavior and social surroundings.

ENDURE TRAINEE CAREER GOALS AND PLAN

The ENDURE program has allowed me to refine my interests in neuroscience and acquire priceless experience. The next step is to take advantage of this distinguishing experience and advance my education until I earn a Ph.D. in Behavioral Neuroscience. My career goal is to become a neuroscience professor at a university where I can transition my ideas to lab studies and contribute to a better way of life. Becoming a college professor is the ideal career for me as I get to not only get to conduct research, but I will have the opportunity to spark interest in students who will be potential scientists in the future. I am applying this fall for Ford Foundation and NSF Graduate Fellowships to support my graduate education.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Colorado at Denver
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Mary Coussons-Read

Research Project Title: An Immune System Weakened: The Role of C-Reactive Protein, sIgA, and Cortisol In Congenital Cytomegalovirus

The goal of the study was to determine if stress experienced during pregnancy affects maternal inflammatory and immune status and increases the risk of congenital cytomegalovirus (CMV) infection. This combination of changes would suggest stress-related alterations in maternal immune and endocrine status which may increase the susceptibility of congenital CMV infection. We collected samples from 35 pregnant women. The women also took two surveys; The Pregnancy Physical Activity Questionnaire (PPAQ) and Cohen's Perceived Stress Scale (PSS). Concentrations of salivary CRP, IgA, and CMV-specific IgG, and Cortisol concentrations were determined. Results showed that women reporting higher physical activity had higher salivary sIgA, and women reporting more time being sedentary had lower sIgA, suggesting a supportive role for activity on secretory immunity. Elevated CRP was associated with lower sIgA, lower self-efficacy, higher depression scores, and more reported time being sedentary. Lower physical activity was also modestly related to higher cortisol and flatter diurnal rhythms. We were unable to detect IgG against CMV in the saliva samples we tested, but this may be due to concentrations of the antibody being substantially lower in saliva than in serum. Together, these data provide initial support for the original hypothesis, and raise important questions for future work.

ENDURE TRAINEE ABSTRACT

NAME: *DAYTON GOODELL*
Home Institution and State: University of Colorado Denver, Colorado
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Spring 2012
Mentors/Advisors at Home Institution: Dr. Sondra Bland

ENDURE TRAINEE SCIENTIFIC INTERESTS

Currently, my research interests involve two diverse areas: 1. neurological mechanisms behind problems faced by returning combat veterans including depression, post-traumatic stress disorder, substance abuse, and traumatic brain injury, and 2. neurological dysfunction that leads to motor and movement impairments such as those which occur in Multiple Sclerosis and Parkinson's disease. I am interested both in the neurobiology and the psycho-pharmacology associated with these disorders.

ENDURE TRAINEE CAREER GOALS AND PLAN

I intend to attend graduate school and pursue a Ph.D. in neuroscience. I would like to work with one of the disorders listed above. I am also very interested in teaching, and would like to pursue a track toward becoming a research professor.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Colorado, Anschutz Medical Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Kim Heidenreich

Research Project Title: The role of microglia and astrocytes in the production of leukotrienes after traumatic brain injury

The study investigated a possible novel source of cysteinyl leukotrienes (cys-LTs), potent inflammatory lipids derived from arachidonic acid, which mediate blood-brain barrier disruption, edema, and cell death after traumatic brain injury. Although it is known from past work in this laboratory that 50% of cys-LT production after fluid percussion injury in the rat occurs through a transcellular mechanism whereby infiltrating neutrophils (which contain 5-LO) contribute an exogenous source of LTA_4 that is taken up by endogenous brain cells and converted to cys-LTs, the endogenous source of LTA_4 is not known. Due to their myeloid origin, we hypothesized that microglia also have 5-LO and are the endogenous source of LTA_4 in the brain after injury. Primary cultures were obtained from post-natal day one rats, and microglia and astrocytes were cultured separately with >95% homogeneity, determined with immuno-histo-chemistry. Cultures were stimulated with calcium ionophore (A23187) either separately or mixed, and cys-LT production was measured using reverse phase high-pressure liquid chromatography/tandem mass spectrometry. The results suggest that there is no 5-LO activity in microglia, and that at least in cells cultured from newborn rats, microglia did not contribute the endogenous source of LTA_4 needed for cysLT production.

ENDURE TRAINEE ABSTRACT

NAME: *CASSANDRA HAYTER*
Home Institution and State: University of Colorado Denver, Colorado
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology, May 2012
Mentors/Advisors at Home Institution: Dr. Sondra Bland

ENDURE TRAINEE SCIENTIFIC INTERESTS

In the laboratory I currently work in, I've gained experience with immunohistochemistry protocols, density counts of glial cells, and dendritic spine counts. This, in combination with a neural basis of learning and memory course I took, has promoted an interest I didn't previously have with working on the molecular level. It would be interesting to fully understand processes such as plasticity, or how systems work in the brain, such as olfaction or vision, at this basic level. Even more exciting would be capturing these processes via procedures such as IHC or immunofluorescence.

ENDURE TRAINEE CAREER GOALS AND PLAN

Upon graduation I aim to attend graduate school to further pursue my career in Neuroscience. Involvement in labs examining the molecular processes that occur with disease or disorders of the brain are most appealing to me. Also I would strive to learn more about, and become involved in, neuropharmacology research. By pursuing neuroscience I feel I could involve myself in significant research, or educate others by one day overseeing my own lab, or becoming a professor.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Colorado Denver/
University of Colorado Anschutz

Research Project Title: The Effect of Adolescent Social Deprivation on PSD 95 Expression.

The medial prefrontal cortex is a brain region involved in social and emotional development by moderating correct social behavior. Previous work in our lab has examined the expression of the protein product of Arc, an immediate early gene associated with plasticity, in the medial prefrontal cortex of rats that had received adolescent social deprivation (ASD) compared to group housed controls. We demonstrated a decrease in social interaction-induced arc expression in ASD rats. To better understand potential disruptions in synaptic plasticity in this region, we labeled the same brains as those from the Arc study with immunlabel against PSD-95. PSD-95 is a post-synaptic density protein involved in synapse stability and AMPA receptor trafficking. Male and female Sprague-Dawley rats were either group housed or isolated (ASD) for four weeks, starting on postnatal day 21. Rats were then exposed to a novel same sex conspecific for 15 minutes and sacrificed 90 min later. Unbiased stereology was used to determine the amount of small, medium and large PSD -95 punctae.

ENDURE TRAINEE ABSTRACT

NAME: *PAUL MIHALYOV*
Home Institution and State: New Mexico State University, New Mexico
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Genetics, May 2013
Mentors/Advisors at Home Institution: Dr. William Maio

ENDURE TRAINEE SCIENTIFIC INTERESTS

Interest primarily lies in the advancement of genetic research, specifically involving biomedical studies. Top interests include tissue culture and some work with plants, but further study in various areas such as bioinformatics and gene regulation are also worthy of mention.

ENDURE TRAINEE CAREER GOALS AND PLAN

Pharmacology is a top prospect, involving both genetic analysis and chemical therapies of human disorders (both general and neurological). Either an industry position or university faculty position are left open to more consideration. Graduate school is a must.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Colorado, Anschutz Medical Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Mair Churchill

Research Project Title: Effect of Novel Small Molecules on Glioblastoma Viability

Anti-silencing function 1 (Asf1) is a histone chaperone that interacts with the H3/H4 histone dimer and is critical to assembly and disassembly of chromatin during DNA dependent processes. Asf1 has been shown to be upregulated in various cancers, and our hypothesis is that successful inhibition of the Asf1-H3/H4 interaction would hinder these DNA dependent processes (DNA replication, repair, and transcription) and slow down cell replication in glioblastoma cells. A panel of publically-available small molecules had been predicted from *in silico* screening to interact with Asf1. Summer research included testing of analogous molecules *in vitro* and in cells for their inhibition potential and to observe their biological effects. MTS assays, competitive ELISAs, and clonogenic assays support Asf1 interaction with the new small molecules, as well as a decrease in glioblastoma proliferation after treatment with the small molecules. This has provided a good opportunity to continue studying this potential glioblastoma therapy.

ENDURE TRAINEE ABSTRACT

NAME: *DANIELLE MIYAGISHIMA*
Home Institution and State: New Mexico State University, New Mexico
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Biology, 2014
Mentors/Advisors at Home Institution: Dr. Graciela Unguez

ENDURE TRAINEE SCIENTIFIC INTERESTS

My specific interests within neuroscience are still open. As I am exposed to more within neuroscience, I am discovering more fascinating things. As of right now, my interests would be neuroregeneration and degeneration as well as developmental neurobiology. I also am interested in some neurological conditions such as migraines that affect so many people, yet there is not a lot of relief for many of them.

ENDURE TRAINEE CAREER GOALS AND PLAN

I am fascinated at the prospect of being able to work on some of medicine's most pertinent questions. I enjoy the critical thinking demanded by research. I want to be able to interact with people and improve lives while working on understanding their diseases and possibly making their diseases more manageable, or even curable.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Colorado, Anschutz Medical Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Kimberly Bjugstad

Research Project Title: Hyaluronic Acid in the Hippocampal Extracellular Matrix as a Function of Down Syndrome and Aging

Filling the space between neurons and glia are polymerized glycosaminogylcans (GAGs), proteoglycans, modulating enzymes and binding factors, collectively known as the extracellular matrix (ECM) (Bonneh, et al., 2009). The ECM plays many crucial roles in development and aging; however, it can also be involved in the development of neurological disorders. For example, amyloid fibrils attach to the sulfated GAGs in the ECM during the formation of beta-amyloid plaques found in Alzheimer's disease (AD) (Ariga et al., 2010). Individuals with Down Syndrome (DS) undergo similar neuropathology to AD including neuronal loss in the hippocampus and cortex and the development of amyloid plaques (Sun, et al. 2011, Glenner et al., 1984). Because DS individuals develop AD early, differences in the ECM may be observable in earlier time points. This study evaluated the ECM in the brains of mice modeling DS and compared them to normal (disomic) brains, based on intensity changes in the levels of hyaluronic acid (HA), the non-sulfated GAG backbone of the ECM. Our study suggests that HA is generally increased in aged mice and that trisomy further elevates it in some Hippocampal areas.

ENDURE TRAINEE ABSTRACT

NAME: *VERONICA PARRA*
Home Institution and State: University of Colorado Denver, Colorado
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology, Spring 2012
Mentors/Advisors at Home Institution: Dr. Restrepo, Dr. Sondra Bland and Dr. Davies

ENDURE TRAINEE SCIENTIFIC INTERESTS
One of my scientific interests in neuroscience is to work with stem cell cultures, in order to better understand how special functions occur at the cellular level. Through the study of stem cell cultures, many aspects of how the central nervous system works can be observed and the ways in which specific mechanisms interact can be understood. The use of advanced technology, such as robots, nanotechnology, and non-invasive imaging in the field of neuroscience is something that I am also very interested in. There is still so much to learn about the brain and I believe that using advanced technology will be the key to making these future discoveries in better understanding how the brain works.

ENDURE TRAINEE CAREER GOALS AND PLAN
My current major is psychology, and after graduation, I will be applying to a neuroscience graduate program. As an undergraduate, research has been a part of my academic career for the past 2.5 years; the knowledge I've gained through undergraduate research has definitely helped me build a strong foundation for pursuing a Ph.D. in neuroscience. Nonetheless, I feel that I can benefit further from experiencing a variety of other sub-areas within the field of neuroscience in order to both diversify my knowledge base and provide a wider array of related career opportunities.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: University of Colorado, Anschutz Medical Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Davies and Dr. Restrepo

Research Project Title: Investigations of the Effects of Decorin on Neurite outgrowth by Embryonic Cortical Neurons

My current project in Dr. Davies' lab is focused on culturing neuronal stem-cells in order to better understand how to repair and regenerate damage done to the central nervous system using scar suppression (particularly spinal cord injuries). This pilot study will investigate whether decorin treatment can affect specific integrin receptor expression, neurite extension / branching by embryonic E-18 cortical neurons grown on substrates of laminin and fibronectin alone after 24 and 48 hours in culture. Future experiments will also test the effects of decorin on neurite extension and integrin expression by adult cortical neurons grown on laminin and fibronectin substrates.

ENDURE TRAINEE ABSTRACT

NAME: *BEATRIZ SALAZAR*
Home Institution and State: University of Colorado Denver, Colorado
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Psychology, Spring 2013
Mentors/Advisors at Home Institution: Dr. Jefferson Knight

ENDURE TRAINEE SCIENTIFIC INTERESTS
The scientific interest currently is working with synaptotagmin, as well as working with high glucose cells and low glucose cells.

ENDURE TRAINEE CAREER GOALS AND PLAN
I plan to continue my education, hopefully in the neuroscience field, possibly through bioengineering. I would love to give back to students, who at one point may also be looking for an opportunity, like I did, and allow them to have an opportunity like I did.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: University of Colorado, Anschutz Medical Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Jennifer Stratford and Dr. Tom Finger

Research Project Title: Why does citric acid elicit a behavioral response in mice?

Over the summer, the interest was looking at the behavior of "taste blind" mice, and their behavioral reaction to citric acid in a brief-access test; As well as, looking at their physiological response in the nucleus of the solitary tract.

ENDURE TRAINEE ABSTRACT

NAME: *ELISA VESELY*
Home Institution and State: New Mexico State University, New Mexico
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Biology, December 2012
Mentors/Advisors at Home Institution: Dr. Barbara Lyons

ENDURE TRAINEE SCIENTIFIC INTERESTS

Neuroscience is my main interest for future research, specifically, cell biology and the biological basis of neurodegenerative disorders. Diseases such as these, when the body beings to degrade itself I find to be highly intriguing. I'm interested in researching the hormonal cues relevant to disease of the brain, the underlying biochemical system, and also the molecular signaling involved. Studying plasticity in adults and how that relates to diseases that seem to 'ebb and flow' as well as signaling through G-proteins are two subjects that I would also like to delve into.

ENDURE TRAINEE CAREER GOALS AND PLAN

After I receive my Bachelor's of Science in Biology here at New Mexico State University, I plan on attending a graduate school to build up research experience, narrow my focus, and learn as much as I can in my pursuit of a Ph.D. At the completion of my education, I would like to join a national or private lab to contribute and elaborate on neurodegenerative disease research as well other neurobiological and cell biology related endeavors.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Colorado, Anschutz Medical Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Wendy Macklin and Dr. Danielle Harlow

Research Project Title: Role of Proteolipid Protein in Spinal Cord Oligodendrocyte Progenitor Cell Migration

During development, oligodendrocyte precursor cells (OPCs) originate from the ventricular zone of the brain and spinal cord and migrate throughout the central nervous system (CNS). Deciphering mechanisms of failed OPC migration could shed light on previously unknown aspects of several demyelinating diseases. Earlier studies have shown that some aspects of OPC migration are mediated by the myelin proteolipid protein, PLP, which is expressed by precursor cells. The objective of the project was to determine if PLP had a role in the migration of OPCs in the spinal cord. This was done by studying fixed spinal cords of wild-type and PLP-null mice at age E16.5. These mice expressed eGFP driven by the PLP promoter, which allowed detection of PLP-expressing OPCs, and sections were also stained for platelet-derived growth factor receptor α (PDGFαR), a classic marker of OPCs. The number of cells that expressed eGFP and PDGFαR was quantified and there was a significant decrease in cells that co-expressed both markers in the Ventral Intermediate Zone of PLP-null mice. This suggests that PLP has an important role in migration of OPCs in vivo, and that there could be a disruption in the migration and/or maturation of OPCs in PLP-null mice.

SOUTH TEXAS ADVANCED RESEARCH TRAINING: UNDERGRADUATE PROGRAM (START-UP)

UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER, SAN ANTONIO
Principal Investigator: *Dr. Alan Frazer*
Partner Institutions: University of Texas, San Antonio; Lady of the Lake University; St. Mary's University; Trinity University; and University of the Incarnate Word

PROGRAM DESCRIPTION: The overall goal of our Program is to encourage and prepare junior and senior undergraduates from the San Antonio and South Texas Region to enter doctoral programs in neuroscience, to complete them successfully, and become well-trained and competitive neuroscientists. To accomplish this, a comprehensive program is proposed for students accepted into the program, involving extensive research experiences in the laboratories of successful neuroscientists, and opportunities to develop and improve their writing, speaking, and time management skills.

Students will be recruited into START-UP from five partner institutions in San Antonio, namely Our Lady of the Lake University, St. Mary's University, Trinity University, University of the Incarnate Word, and the University of Texas, San Antonio. Collectively these schools have 24,527 undergraduates who are URMs (based on ethnicity), of whom 2,947 are Science Majors. Also, these schools have a high number of students from low income families, many of whom are the first in their families to attend college. Faculty contacts have been established at each school to assist us recruit suitable students into START-UP. Thirty-one training faculty have been identified (including three from UTSA), who are appropriate to mentor these students in their laboratories. The students will participate in laboratory research for an average of 12 hours per week during the two academic semesters, and 40 hours/week during a 10-week intensive summer research exposure. Students will also have an opportunity to work in one of seven major neuroscience programs at institutions outside of San Antonio during the summer.

In addition to their laboratory research, the students will also attend seminars and journal clubs, research retreats, and have exposure to neuroscientists from other institutions. The students will all receive instruction on the responsible conduct of research. The Co-Directors of the Program are Drs. Alan Frazer and David Weiss, experienced scientists and administrators, who have run programs similar to START-UP previously. They will be members of an Executive Committee that will oversee all aspects of the Program. There is a formal evaluation plan for the Program, as well as an outcomes assessment process. Further, a plan is described to disseminate nationally all materials developed for the design and implementation of START-UP.

ENDURE TRAINEE ABSTRACT

NAME: *LUCERO ALVARADO*
Home Institution and State: University of Texas at San Antonio, Texas
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Clinical Lab Science, May 2013

ENDURE TRAINEE SCIENTIFIC INTERESTS

The ENDURE program interests me because my goal is to become a Neuroscientist and this program will fuel my knowledge of the field of Neuroscience.

ENDURE TRAINEE CAREER GOALS AND PLAN

Since my goal is to become a Neuroscientist the ENDURE program will allow me to become more knowledgeable about the field.

ENDURE TRAINEE ABSTRACT

NAME: *JUAN BAUTISTA JR.*
Home Institution and State: University of Texas at San Antonio, Texas
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Biology, May 2013

ENDURE TRAINEE SCIENTIFIC INTERESTS
Neuroscience is a fascinating field that has been constantly expanding. I have always wanted expand my knowledge on neuroscience. I feel that the ENDURE program can help me achieve my goals of obtaining a Ph.D. in the neuroscience field. This is an excellent program in which I can get research education experience that would be beneficial to me when I apply to graduate school. Experience goes a long way and I am hoping this program will provide the utmost research experience possible. I hope by participating in this program I will be able to understand what being a scientist is all about.

ENDURE TRAINEE CAREER GOALS AND PLAN
After I obtain my bachelor degree in Biology, I plan to purse a Ph.D. degree in the Neuroscience field. I plan to utilize my Ph.D. education in either the academic area or in the health service field. I hope to study the Neuroimmunology field. I still don't know if I want to teach at a University and carry on my research at that university or if I should work for a hospital. Another option is that I can work for government agencies and labs.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: University of Texas at San Antonio
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Consuelo Walss-Bass

Research Project Title: Understanding psychiatric disorders at the molecular level

The research will focus on the understanding of psychiatric disorders at the molecular level. We would utilize genomic and proteomic techniques in human and animal models to correlate genetic variations with cellular function in order to understand the molecular mechanisms that are involved in development and expression of mental illnesses. We would also study the mechanism of action of antipsychotic medications, as it may lead to an understanding of the cellular processes involved in psychotic disorders.

ENDURE TRAINEE ABSTRACT

NAME: *MELISSA DELCONT*
Home Institution and State: University of Texas at San Antonio, Texas
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Biology, May 2012
Mentors/Advisors at Home Institution: Jimmy Roberts, Ph.D.

ENDURE TRAINEE SCIENTIFIC INTERESTS

She is interested in learning the underlying mechanisms of neurological disorders caused by genetic mutations in pediatric patients. Profound understanding of the mechanisms of disease will enable her to pursue targeted therapies and treatments to better the life of pediatric patients. She is also interested in learning more research techniques that are applicable in neuroscience research and genetics research in order to better test her ideas.

ENDURE TRAINEE CAREER GOALS AND PLAN

She would like to become a medical scientist, and will apply for M.D. / Ph.D. programs in Texas during the summer of 2012.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Texas at San Antonio
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Jim Lechleiter

Research Project Title: Does Knock-down of the calcium sensor of the mitochondrial calcium uniporter decrease astrocyte neuroprotection?

Increasing Ca^{2}+-dependent mitochondrial metabolism in astrocytes offers neuroprotective effects. The mechanism for this neuroprotection has not yet been fully established, but it is known that stimulation of the P2Yl receptor by numerous ligands, including extracellular ATP, leads to the activation ofthe IP3 pathway, and the increase in intracellular ATP production. We hypothesize that the calcium released by IP3 pathway activation enters the mitochondria through a calcium uniporter in order to initiate an increase in intracellular ATP production. In this study, we will knock down the calcium sensor on this calcium uniporter that lets the calcium into the mitochondria to see if neuroprotection by astrocytes decreases. To accomplish this goal, siRNA interference against the calcium sensor, MICUl, was performed. Sufficient knockdown of the sensor did not occur using this method, so a different strategy to knock down the sensor was employed. Lentiviral shRNA interference was performed with control GFP in order to determine if lentiviral infection is effective in our cell line, and to determine a multiplicity of infection (MOl) for lentiviral shRNA interference against MICUl. Lentiviral infection of control GFP was successful, and a MOl of 40 was determined to be most sufficient in our cell line.

ENDURE TRAINEE ABSTRACT

NAME: *NOEL SHAHEEN*
Home Institution and State: St. Mary's University, Texas
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Biology, May 2012
Mentors/Advisors at Home Institution: Dr. Paul Fitzpatrick and Dr. Susan Daubner

ENDURE Trainee Scientific Interests

Although the entire field of neuroscience fascinates me, I am particularly interested in certain aspects of the subject. I find neurodegenerative diseases such as Alzheimer's and Parkinson's disease to be particularly fascinating. Those are my mine interests, although I understand that there is still much to learn and I may develop new fascinations throughout my research experience.

ENDURE Trainee Career Goals and Plan

I am currently applying to graduate schools and hope to continue my education and by getting a Ph.D. in Neuroscience. When I graduate, I want to study and work with clinical applications dealing with spinal cord injuries or neurodegenerative diseases. There are so many people in the world that have to live with these maladies, and I hope to one day change that or uncover more information that can be used in the future for treating or curing these types of afflictions.

ENDURE TRAINEE INFORMATION AND RESEARCH ABSTRACTS
NEUROSCIENCE RESEARCH OPPORTUNITIES TO INCREASE DIVERSITY (NeuroID)

UNIVERSITY OF PUERTO RICO RIO PIEDRAS
Principal Investigator: *Dr. Jose Garcia-Arraras*
Partner Institutions: Inter-American University of Puerto Rico, Bayamon Campus and Universidad el Este

PROGRAM DESCRIPTION: Neuroscience Research Opportunities to Increase Diversity (NeuroID) from the University of Puerto Rico Rio Piedras Campus aims to increase the opportunities available for undergraduate students in the area of Neurosciences. The proposal makes use of the strong Neuroscience expertise among UPR investigators and fortifies the underlying neuroscience network that joins undergraduate students, island investigators and their collaborators in mainland institutions.

The training program consists of three major components: (1) Research Experience - An intense research experience during the academic year and a summer experience in a laboratory at an institution in the mainland USA, such as Harvard, Yale, Univ. Colorado Denver, Univ. of Vermont, Northwestern University, Univ. Miami, that have active T32 training grants in neuroscience and/or excellent track record in recruiting and training underrepresented minorities. (2) Academic training participation in seminars, workshops and selected courses to enhanced their knowledge in neurobiology, and understanding of a research career. (3) Student development activities - Participants will enter a mentoring program that includes community outreach activities, scientific writing and oral presentations and other professional enhancement activities.

The proposed activities together with an established mentoring program with members of the Neuroscience community will serve to increase the student competitiveness and enhance their interest in continuing a research career in neuroscience. The NeuroID program will extend the impact of other successful programs at the University of Puerto Rico, not only by focusing on the Neuroscience field but also by greatly expanding the number of possible mentors, increasing the pool of available applicants as well as providing an inclusive and broader training program.

ENDURE TRAINEE ABSTRACT

NAME: *EDITH BRIGNONI-PÉREZ*
Home Institution and State: University of Puerto Rico, Rio Piedras Campus, Puerto Rico
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Psychology, May 2013
Mentors/Advisors at Home Institution: Dr. Gregory J. Quirk

ENDURE TRAINEE SCIENTIFIC INTERESTS
My scientific interests focus on how Neuroscience could improve the quality of life of our society. My academic development and research experience is directed toward Psychology and Neuroscience because my interest on the mind-body debate, specifically the study of the inter-relation between both structures fascinates me to a great extent. I am interest in exploring unknown brain capacities and connections to enhance human cognition and wellbeing. Finally, I will pursue an academic career, as teacher and researcher.

ENDURE TRAINEE CAREER GOALS AND PLAN
My short term goals and plans are formally presenting and/or publishing my B.A. degree thesis; continue working in research to further improve my technical and critical thinking skills and apply to an Experimental Neuropsychology Graduate Program. At the graduate school, I will become a professor's assistant to develop and refine teaching skills. Also, I expect to finish my Ph.D. degree with respectable published work. After completing the Ph.D. program and post-doctoral fellowship, I aspire to develop an academic career where I could develop new knowledge through the establishment of an intensive research program and share the acquired knowledge with students at the undergraduate and graduate level.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: University of Puerto Rico - School of Medicine Mentors/Advisors at ENDURE Summer Research Experience Institution:
Dr. Gregory J. Quirk

Research Project Title: Prelimbic inactivation blocks avoidance without reducing freezing: Resolving the conflict

As part of the ENDURE-NeuroID program scientific training, I worked in my first laboratory research experience last summer. I did a research internship at the Laboratory of Fear Learning of Dr. Gregory J. Quirk, established at the UPR School of Medicine. This research internship was allowed me to develop the required theoretical and practical skills to carry out and understand laboratory research. I took several workshops organized by ENDURE-NeuroID aimed at educating students about ethical and responsible conduct in research. Since I am a Psychology major, I took a series of seminars on basic knowledge in cellular biology, rat–human comparative anatomy; synaptic plasticity and brain chemistry that helped me gain a better understanding about the lab's work. I conducted behavioral test on rats that greatly helped me acquire technical proficiency and knowledge on the scientific endeavors. Along with these experiments, I analyzed videos and data acquired by fellow students in the lab that help me develop an analytical perspective and the importance of thorough analysis.

ENDURE TRAINEE ABSTRACT

NAME: *PABLO MALDONADO*
Home Institution and State: Universidad Metropolitana, Puerto Rico
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Biology, December 2012
Mentors/Advisors at Home Institution: Sandra Peña de Ortiz, Ph.D.

ENDURE TRAINEE SCIENTIFIC INTERESTS
I always had an interest in science, and finding out how things work. This interest has been nourished and stimulated by my grandmother. I want to be able to use the acquired knowledge to understand different scientific concepts, and apply this knowledge to answer scientific questions that lead to better the life of all living organisms.

ENDURE TRAINEE CAREER GOALS AND PLAN
My career goals are to obtain a Ph.D. in Biology or Neurobiology. Specifically, I would like to study the effect or how behavior influences the evolution of an organism. I will work toward achieving this goal by first finishing a B.S. in Biology. Then, I will apply to graduate school programs that combine cognitive neuroscience and evolution.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: Universidad de Puerto Rico Recinto Rio Piedras Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Sandra Peña de Ortíz and Dr. Adrinel Vazquez

Research Project Title: Nurr1-CREB Dependent Hippocampal Induction and Functional Requirement in Consolidation of Context Fear Conditioning.

During the summer, I learned to perform Real-Time PCR and how to apply it to my research project. I used this technique to determine the effect of tamoxifen on the expression of Nurr1. I help characterized a transgenic mouse that has been developed with a Tamoxifen-inducible Cre recombinase to silence the expression of the gene that codify for the nuclear receptor Nurr1. I also learned and applied western blot to determine the protein level of Nurr1 in brain tissue. The further characterization of these transgenic mice will help us elucidate the role that Nurr1 plays in the consolidation of context fear conditioning. This summer experience has taught me the reality of the research endeavor, from the understanding that experiments do not necessarily always work out in the way we expect and that we must have patience and perseverance in order to succeed.

ENDURE TRAINEE ABSTRACT

NAME: *RAYMOND LOUIS QUILES*
Home Institution and State: Inter American University of Puerto Rico
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Biology, June 2013
Mentors/Advisors at Home Institution: Dr. Loyda Melendez

ENDURE TRAINEE SCIENTIFIC INTERESTS
The scientific interest supported by the Endure program is a clinical neuroscience investigation that deals with HIV and understanding the neurological disorder that is caused by this retrovirus. I am interested in understanding changes in proteome dynamics in response to pathological conditions.

ENDURE TRAINEE CAREER GOALS AND PLAN
My career goals and plans are to continue my education. I am interested in a medical career that involves research in neuroscience. My goal is to be involved in clinical research directed toward the identification or development of better treatments and diagnostic tools for neurological disorders.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: UPR Medical Science Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. Loyda Melendez

Research Project Title: Quantitative Profiling of Macrophage's Secretome in HIV using ITRAQ

During the summer, I worked at UPR Medical Science Campus conducting a Quantitative Profiling of the Macrophage Secretome using ITRAQ. The goal of the project is to identify and quantify differences between the macrophage sercetome from women who are HIV positive and cognitive impaired versus women non-infected and with normal cognition. During the summer, the ENDURE-NeuroID Program developed activities to help us familiarize with the scientific environment in order to become better researchers. The activities dealt with neuroethics, laboratory etiquette and the proper way to write an abstract and prepare a poster. I also enjoyed learning new techniques that will contribute to reach my goal of becoming an established and independent scientist.

ENDURE TRAINEE ABSTRACT

NAME: *GABRIEL E. MARRERO RIVERA*
Home Institution and State: University of Puerto Rico, Rio Piedras Campus, Puerto Rico
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Cellular & Molecular Biology, May 2013
Mentors/Advisors at Home Institution: Dr. José A. Lasalde

ENDURE TRAINEE SCIENTIFIC INTERESTS
My scientific interest consists on continuing studying Molecular Cellular Biology, nevertheless, concentrating on Neuroscience. My interest in neuroscience traces back to my childhood, since my mom is a Neurologist and as a child I had the opportunity to become familiarized with the complex biological structure of the brain. I never fully understood the concepts until now, since I have had the experience of working on a neuroscience project and learn the distinct mechanisms by which the nervous system works, concretizing my passion towards the study of the intricate structure called the brain.

ENDURE TRAINEE CAREER GOALS AND PLAN
My career goals consist on completing my Bachelor's Degree in Molecular Biology in order to continue with an M.D. / Ph.D. in Neuroscience. During this time, I plan on leading my own scientific projects and proposals with a research team. Ultimately, my goal is to become a medical-oriented researcher, so I can help people through clinical service and have the opportunity to use my critical and analytical skills in research to eventually carry out discoveries that could revolutionize the field of neuroscience and give people the opportunity of living a better life.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: UPR Rio Piedras Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Dr. José A. Lasalde

Research Project Title: Characterization of molecular changes due to the up-regulation of α7-nicotinic acetylcholine receptors (α 7-nAChRs) in gp120 transgenic mice brains and macrophages.

During this summer, ENDURE-NeuroID program has offered numerous workshops involving neuroethics, scientific oral presentations, research articles, lab etiquette, among other aspects that have enriched my experience as a member of the program and as a scientist. In addition to these activities, I was able to give an oral presentation about the research project that I will be working on for the following two years in the program. I was able to continue working on the characterization of molecular changes due to the up-regulation of α 7-nicotinic acetylcholine receptors (α 7-nAChRs) in gp120 transgenic mice brains and macrophages. Throughout the summer, I learned how to perform western blot to study if there are differential expression of α 7-nAChRs in macrophages of wild type mice vs. gp120 transgenic mice. I was also taught on how to perform protein extraction from cell cultures and brain tissue of mice. Additional to these procedures, I was also trained to analyze confocal imaging to determine the intensity of fluorescence of α 7-nAChRs labeled with α -bungarotoxin on macrophages using control and certain enhancers and inhibitors to elucidate the pathway of the up-regulation of α 7-nAChRs in macrophages.

ENDURE TRAINEE ABSTRACT

NAME: *ANDREA SILVA-GOTAY*
Home Institution and State: University of Puerto Rico, Rio Piedras Campus, Puerto Rico
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Chemistry, May 2013
Mentors/Advisors at Home Institution: Jennifer L. Barreto-Estrada, Ph.D.

ENDURE TRAINEE SCIENTIFIC INTERESTS

I have various scientific interests, since I am majoring in chemistry and I also developed certain passion for biological and biomedical sciences, especially for the neuroscience field. It may seem like two different paths, but I believe that they are both related and at the end they both connect. I believe that my academic preparation as chemist will provide the necessary tools to understand the intricate communication and regulation of cells in the central nervous system.

ENDURE TRAINEE CAREER GOALS AND PLAN

My short term goal is to apply to a neuroscience graduate program at a competitive graduate school. I plan to finish the B.S. in Chemistry at UPR-Rio Piedras and apply for graduate schools of my interests. I would like to apply to a graduate program that combines chemistry and neuroscience.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Puerto Rico, Medical Sciences Campus
Mentors/Advisors at ENDURE Summer Research Experience Institution: Jennifer L. Barreto Estrada, Ph.D.

Research Project Title: Role of synthetic androgens in the development of social play behavior into full sexual development in rats

The objectives of the summer research project was to assess the social play behavior of adolescent rats, which is called rough-and-tumble play behavior, and to determine the effects of synthetic androgens in the development of rough-and-tumble play to full sexual competence. Rats exhibit the rough-and-tumble play behavior during their juvenile/peri-pubertal stage, especially male rats. First we corroborated the literature and confirmed the ages in which the rats showed greater exhibition of this behavior. When the preliminary results were obtained, we proceeded with the next research step that consisted in observing how the exposure to AAS affected the Rough-and-Tumble play behavior. It was expected that AAS would decrease the play behavior and set forward the sexual maturation in the male rat or show an increase in the sexual behavior, i.e., increase in mounts, decrease in play behaviors like pouncing, pinning, boxing and wrestling.

ENDURE TRAINEE ABSTRACT

NAME: *JENNIFER OLÁN SOTO*
Home Institution and State: University of Puerto Rico, Rio Piedras Campus, Puerto Rico
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Biology, 2013
Mentors/Advisors at Home Institution: Eduardo Rosa–Molinar, Ph.D.

ENDURE TRAINEE SCIENTIFIC INTERESTS

My scientific interest is in the field of neuroscience, specifically circuit neuroscience. In order to understand how the central nervous system (CNS) develops and works, circuit neuroscientists have begun to develop wiring diagrams of neural circuits. I am studying the axonal wiring of a spinal neural circuit using correlative light and high-throughput electron microscopic imaging approaches in order to elucidate fundamental principles of a neural circuit such as the "wiring economy principle" proposed by the Spanish physician and Nobel laureate Santiago Ramon y Cajal more than 100 year ago.

ENDURE TRAINEE CAREER GOALS AND PLAN

My short-term goal is to obtain a Bachelor of Science in Biology at the University of Puerto Rico-Rio Piedras. I will then apply to graduate school and pursue a Doctor of Philosophy degree (Ph.D.) in the area of neuroscience, specifically circuit neuroscience.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

ENDURE Summer Research Experience Institution: University of Puerto Rico-Rio Piedras
Mentors/Advisors at ENDURE Summer Research Experience Institution: Eduardo Rosa-Molinar, Ph.D.

Research Project Title: The "Wiring Economy Principle" Revisited: Lessons from the Musculus Erector Analis Major

Over 100 years ago, the Spanish Nobel laureate Santiago Ramon y Cajal postulated what is now known as the "wiring economy principle," i.e., neurons in a circuit are arranged to minimize the wiring cost.

Over the summer I received hands-on practical training in: 1) immunochemistry and immunofluorescence basics (i.e. dilution of antibodies, incubation, stability, cross-reactivity etc.); 2) different detection methods; 3) tissue processing methods (i.e. frozen and vibrotome); 4) principles of fixation; 5) antigen unmasking; 6) controls; and 7) trouble-shooting problems such as high background, application of controls, and false-positive results. This training prepared me to identify specific neuron types and their axonal processes to develop detailed wiring diagrams of the positions of neurons in the spinal cord as they relate to sex. We use the *musculus erector analis major* of the Western Mosquitofish, *Gambusia affinis*, a vertebrate model system, because of 1) the numerical simplicity (43 neurons) in the Rapid Copulatory Circuit (RCC); 2) uniquely identifiable neurons and synapses; and 3) the link between the RCC and an observable quantifiable behavior. My goal is to resolve the optimal wiring diagram of one of eight spinal segments of the RCC to assess if position in the circuit minimizes the wiring cost.

ENDURE TRAINEE ABSTRACT

NAME: *JAIME III VAQUER ALICEA*
Home Institution and State: University of Puerto Rico, Rio Piedras Campus, Puerto Rico
Undergraduate Academic Level: Junior
Undergraduate Major and Expected Graduation Date: Cellular and Molecular Biology, 2013
Mentors/Advisors at Home Institution: Irving E. Vega Ph.D.

ENDURE TRAINEE SCIENTIFIC INTERESTS
It is common knowledge that in the near future there will be a demographic population shift toward an increase of people 65 years or older. The incidence of neurological disorders increases exponentially as people aged. There is currently no cure for most neurological diseases. This not only represents a social threat but also an economic crisis. I came to the realization that a genuinely qualified scientist should have the ability not only to study the nature of diseases but also to posses the knowledge, skill and values to contribute to the wellbeing of everyone. My pursuit of a research experience in neuroscience is dictated by my uncanny love for science and humanity.

ENDURE TRAINEE CAREER GOALS AND PLAN
During the past two years, I worked on the pathophysiology associated to tau-mediated neurodegenerative diseases, as in Alzheimer's disease and FTDP-17. Specifically, my work is directed to characterize a novel tau associated protein; known as EFhd2. During this time, it has been apparent that commercial treatment of some neurological diseases has produced results that are far from satisfactory. It has now become my interest to pursue the education and training required to position myself at the forefront and groundbreaking research directed to indentify biomarkers and pharmacological targets to provide the best treatment to people affected by neurodegenerative diseases.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE
ENDURE Summer Research Experience Institution: University of Puerto Rico-Rio Piedras
Mentors/Advisors at ENDURE Summer Research Experience Institution: Irving E. Vega, Ph.D.

Research Project Title: EFHD2 expression and subcellular localization in a cellular model

During the past summer I was involved in the study of EFhd2 protein. EFhd2 is a calcium binding protein that was found associated with pathological forms of tau proteins in the tauopathy mouse model JNPL3 and AD brains. During my research experience, I was specifically involved in determining expression and subcellular localization of EFhd2 in SH-S5Y5 cells. I sought to answer questions regarding the expression of the protein in differentiated vs. non-differentiated cells, the determination of the subcellular localization of EFHD2 and its association with other proteins. As part of the summer research experience I also participated in several seminars on diverse aspects of a research career: ethics, lab safety, poster presentations, oral presentations, laboratory etiquette and the graduate school application process. The ENDURE-NeuroID summer program provided ample opportunities to develop the necessary technical and professional skills and a better understanding of a research career.

ENDURE TRAINEE ABSTRACT

NAME: *LIONEL D. VÁZQUEZ FIGUEROA*
Home Institution and State: University of Puerto Rico, Rio Piedras Campus, Puerto Rico
Undergraduate Academic Level: Senior
Undergraduate Major and Expected Graduation Date: Cellular and Molecular Biology/ Chemistry, May 2013
Mentors/Advisors at Home Institution: Dr. José García Arrarás

ENDURE TRAINEE SCIENTIFIC INTERESTS
My main interest is in the area of cognitive neuroscience, particularly the study of memory formation and learning. I am intrigue by the molecular basis of higher neural functions and how the mind as a whole can be biologically studied.

ENDURE TRAINEE CAREER GOALS AND PLAN
My long-term goal is to pursue a M.D. / Ph.D. joint degree. By reaching this goal, I intend to gain in-depth knowledge and experience in caring and treating human subjects and eventually do transitional research on learning and memory formation. My ultimate goal is to understand the biological basis of the human learning process and develop tools to enhance human learning.

ENDURE TRAINEE SUMMER RESEARCH EXPERIENCE

Research Project Title: Hippocampal NMDA receptor surface expression in Status Epilepticus and epilepsy

Previous to be accepted into the ENDURE-NeuroID program, I was offered and accepted a position as an intern in the University of Virginia's School of Medicine summer research program, entitled SRIP. The SRIP summer program funded my summer research experience instead of the ENDURE-NeuroID program. As an intern, I worked in Dr. Jadeep Kappur's lab studying surface expression changes in NMDA-receptors' composition caused by prolonged seizure activity, also known as Status Epilepticus, in mouse models. Using biotinylation and Western Blots, I used a semi-quantitative approach to initiate this project, which may eventually lead to discover better drugs to treat Status Epilepticus.

Complete ENDURE Student Activities at SfN: November 11 – 15, 2011

Friday, Nov 11	7:30 am –12:30 pm Neurobiology of Disease Workshop: The Brain Under Siege: The Biology of Glia and Neurons in Autoimmune Attack of The CNS, Washington Convention Center, 207B 1:00 – 2:00 pm Lunch (provided by workshop) Grand Hyatt Hotel, Washington, Independence Ballroom E (located at 1000 H Street NW, Washington, DC, 20001) *2:30 – 3:00 pm Registration 3:00 – 7:00 pm 1st Annual Meeting Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (ENDURE) 2011 Program Meeting
Saturday Nov 12	Morning and Afternoon Attend Scientific Program • Featured lectures • Symposia • Special lectures • Minisymposia Plan Your Itinerary for Neuroscience 2011 3:30 - 4:30 pm Getting the Most out of SfN: The Annual Meeting and Beyond, Washington Convention Center, 150A For those attending the SfN Annual Meeting for the first time, navigating the many activities can be overwhelming and taking advantage of all the opportunities is challenging. Students and others new to the SfN meeting are invited to this session where experienced participants will share tips on how to get the most value during and after the conference. Whether you are looking for networking strategies or simply ways to make your experience productive and enjoyable, this session will be beneficial. 6:30 - 8:30 pm Diversity in Neuroscience Poster Session, Washington Convention Center, Hall E There will be a gathering of graduate students and postdoctoral fellows from the American Psychological Association Diversity Fellowship program, Meharry-Vanderbilt Alliance for Training, Texas Consortium in Behavioral Neuroscience, SNRP students and the SfN-NINDS Neuroscience Scholars Program to present their research findings. There will be a few short alumni presentations and awards. We encourage you to come enjoy the refreshments and to meet with graduate and post-doctoral students from these various programs. 7:30 - 9:30 pm Career Development Topics: A Mentoring and Networking Event, Washington Convention Center, Hall E Now's your chance to meet and network with SfN mentors. Many experienced professionals will be available to discuss a number of topics in a round-table format. Participants from diverse backgrounds, fields, and work sectors are encouraged to attend. The event is open to all.

COMPLETE ENDURE STUDENT ACTIVITIES AT SFN: NOVEMBER 11 – 15, 2011

SUNDAY NOV 13	MORNING AND AFTERNOON Attend Scientific Program • Featured lectures • Symposia • Special lectures • Minisymposia Plan Your Itinerary for Neuroscience 2011
MONDAY NOV 14	MORNING AND AFTERNOON Attend Scientific Program • Featured lectures • Symposia • Special lectures • Minisymposia Plan Your Itinerary for Neuroscience 2011 6:45 - 8:45 pm FUN POSTER SESSION, RENAISSANCE HOTEL, GRAND BALLROOM CENTRAL & NORTH Socialize and exchange ideas with others interested in undergraduate neuroscience research and education. Undergraduates will present posters of their research, and FUN Student Travel Awards and Educator of the Year Award will be presented. 7:00 – 8:30 pm DIVERSITY NEUROSCIENCE RECEPTION , GRAND HYATT WASHINGTON, INDEPENDENCE FGHI The SfN Committee on Diversity in Neuroscience cordially invites you to attend a special reception in honor of the SfN diversity programs and the NINDS funded R25 Neuroscience Scholars Program. There will be brief presentations by the President and President-elect of the SfN. All are welcome to attend and to enjoy the refreshments.
TUESDAY NOV 15	2:00 - 5:00 pm 30TH ANNIVERSARY NEUROSCIENCE SCHOLAR PROGRAM SYMPOSIUM, WASHINGTON CONVENTION CENTER, ROOM 146C The Society for Neuroscience (SfN) has administered the Neuroscience Scholars Program (NSP) program since 1981. The program has successfully led to promotion of diversity in the scientific workforce. NSP is a three-year fellowship to enhance career development and professional networking opportunities for underrepresented undergraduate, graduate students, and postdoctoral fellows in neuroscience. This is a symposium of accomplished diversity neuroscientists offering inspirational talks about their scientific careers. http://www.sfn.org/index.aspx?pagename=NeuroscienceScholars_Main ENJOY THE REST OF THE SOCIETY FOR NEUROSCIENCE MEETING, SEE YOU NEXT YEAR!

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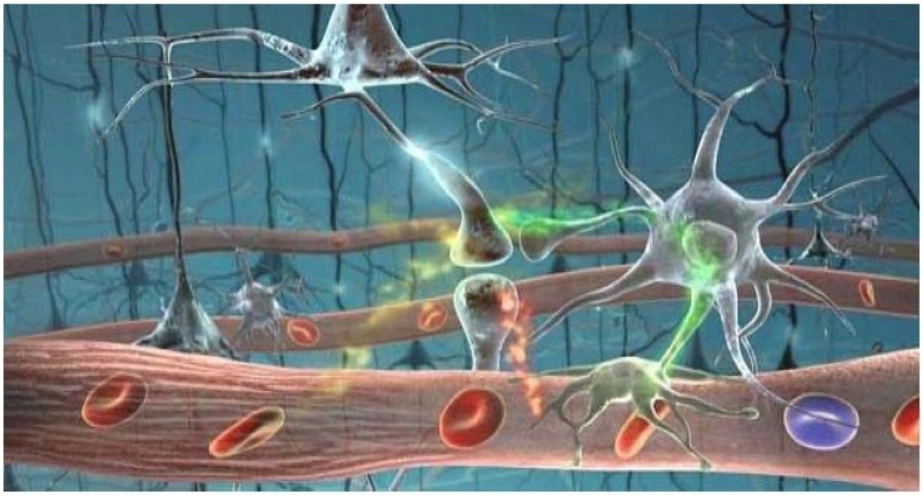

THANK YOU FOR YOUR PARTICIPATION!