



Lana Ruvolo Grasser, Ph.D.



J. David Jentsch, Ph.D.

## **Interview with Lana Ruvolo Grasser, Ph.D., 2022/2023 ACNP-AMP BRAD Fellow**

**Interviewed by J. David Jentsch, Ph.D.**

The ACNP Animal Research Committee, in collaboration with Americans for Medical Progress (AMP), is pleased to announce the selection of Dr. Lana Ruvolo Grasser as the 2022-2023 ACNP/AMP Biomedical Research Awareness Day (BRAD) Fellow. BRAD encompasses a set of ongoing activities intended to educate students and the broader public about the importance of biomedical research, including the humane and responsible study of animal models.

Dr. Grasser recently defended her dissertation in translational neuroscience at Wayne State University and is now a postdoctoral fellow at the National Institute of Mental Health. She has dedicated her career to both research on trauma, anxiety and fear, as well as outreach and education.

The ACNP Animal Research Committee thanks Paula Clifford and Logan France, DVM from AMP and Katie Serafine, Ph.D. from the University of Texas-El Paso for their ongoing contributions to this program and to the identification of exceptionally qualified fellows, including our past awardees Dr. Stephanie Maddox (2018-2019), Dr. Katie Serafine (2019-2020), Dr. Laura Erwin (2020-2021), and Dr. Margaux Kenwood (2021-2022).

- 1) Please tell us about the goals of your doctoral and postdoctoral research and share why this line of work is so meaningful to you.**

The goals of my doctoral research were to identify biomarkers of trauma-related psychopathology in youth who have resettled as refugees, and leverage this information to guide development, implementation, and assessment of community-based interventions. I did my graduate training at Wayne State University in Detroit, MI, and I myself grew up in the greater metro Detroit area. This area is home to the largest population of Arab individuals outside of the Middle East, and as such we in Michigan rank in the top 5 states for welcoming persons resettling from the Middle East (and actually all over the world too). When I entered graduate school, one of my mentors Dr. Arash Javanbakht had just started a study looking at the prevalence and severity of trauma-related psychopathology in persons resettling as refugees of Syria and Iraq. This work has been so important because individuals of Middle Eastern ethnicity are underrepresented in scientific research and in the mental health care setting, yet they have disproportionately been affected by war trauma and forced migration. My doctoral research specifically was focused on identifying psychophysiological correlates of posttraumatic stress in youth that could be readily assessed in various settings, including homes, labs, resettlement agencies, and clinical offices (Grasser et al., 2022 *EJPT*). With the understanding of how trauma reshapes the nervous system, and as resettlement agencies continued to experience budget cuts forcing them to cut back on mental health programming, we also partnered with local resettlement agencies to build out creative arts and movement-based intervention programming. We have now worked with over 500 youth and adults from Syria, Iraq, the Congo, Afghanistan, and Burma, and we continue to expand these programs across the state of Michigan as well as virtually.

As I move forward into my postdoctoral position under the mentorship of Dr. Melissa Brotman, I am looking forward to continuing to work in the child development space. With the Neuroscience and Novel Therapeutics Unit, I will be using neuroimaging and psychophysiological measures to study irritability, anxiety, and their treatment in youth. The overarching thread through my research is seeking to understand the intersections between how experiences shape the nervous system, how that nervous system is shaped by those experiences, and how that shaping informs the way youth perceive and respond to the world around them. With this understanding, we can in turn identify who may be in need of additional support throughout their journey and what interventions may be of best fit for them. We can also learn from youth who exhibit resilience. This line of work is so meaningful to me because I know that our youth are our future, and investing in them so that they can grow up in a world structured to support them equipped for best success is an investment in all of us and our global future. I am especially passionate about this work being representative of and impacting all of the diverse members of our global community, and being leveraged to inform public health and policy where we can affect systemic change.

**2) Can you share your perspectives on how neuroscience research using clinical populations can be informed by research conducted using animals?**

Animal research has informed every aspect of clinical care, from understanding biological systems at the molecular level to elucidate disease models, to the development of neuroscientifically informed interventions. This isn't just limited to medications; rather, research conducted using animals has helped us start to understand the physiological mechanisms through which exercise-based interventions, for example, can improve not just the obvious physical health, but also mental health. When we speak here about research conducted using animals affecting clinical populations, we must also remember that clinical populations include our pets—veterinary medicine has also been advanced by research using animals.

As a clinical researcher, I can speak directly to how animal research has provided insights regarding human behavior and psychopathology that clinical research could not. This includes elucidating the neuronal circuitry of the acoustic startle response—one of the candidate biomarkers of PTSD that I study—and neuronal ensembles orthogonally correlated with fear versus extinction learning in the amygdala. Animal research exploring the role of inflammation on transcription of brain-derived neurotrophic factor (BDNF) and how exercise may modulate both inflammation and BDNF levels to support hippocampal neurogenesis

has provided foundational support for my clinical work using movement-based interventions to treat trauma-related psychopathology.

I was also trained as a translational neuroscientist—it is an acknowledgement to and testament that there is a constant intersection between cellular, animal, clinical, and computational research necessary to drive the most robust understanding of organismal health and behavior.

**3) Can you tell us more about your past efforts to engage in outreach and what motivated you to undertake them?**

As a scientist, my research has always been motivated by the needs and interests of the communities my work intends to serve. Throughout my training, service and advocacy have been top priorities for me, and the community-based interventions and educational efforts I'm part of have been actively informed by my neuroscientific research. Over the past five years, I have been working with people who resettle as refugees predominantly from Syria and Iraq, and the success of this work has hinged entirely on having community members as part of the research team, as well as forming trusted community partnerships with resettlement agencies, clinics, mosques, and schools. Through this research, my team and I have learned that for youth, their experiences in school with discrimination and acculturative stress can be just as impactful as their experiences with war and forced migration. Therefore, we've been motivated to work directly with schools and educators to provide trauma-informed trainings and teach them various stress coping and relaxation skills they can use not just with their students but also for themselves.

In addition to those efforts, I have been an active member of SciPol Detroit—a science policy group through Wayne State University and the City of Detroit—and part of the Community Violence Action Group working to identify areas of highest need for interventions to reduce gun violence in Detroit, to structure and track a community intervention, and to deliver policy recommendations to lawmakers. As part of SciPol Detroit, I meet with state and federal lawmakers to advocate for legislation that affects the Detroit and greater Southeastern Michigan community. Currently, I have been working with the team to advocate for legislative co-sponsorship of the Black Maternal Health Momnibus and to lobby support for the bills related to health disparities and funding for scientific research. On the public-facing end, I am well-known for live-tweeting from various conferences (including the ACNP annual meetings) so that other researchers, clinicians, members of the media, policymakers, and members of the public may be privy to the latest advancements in neuroscience. To further translate scientific research to the public, I have spoken on podcasts, radio networks, and written for the general media as well as developed learning modules for high school students. As I advance through my career, I continue to witness the importance of using my voice as a neuroscientist to further the goals of our field as a whole. I believe that advocacy must not just center around one's personal niche of research, but also work on behalf of broader issues that lie at the intersection of all of our work and advance our overarching aims. Outreach and engagement not only allows us to hear the needs and interests of the communities we serve, but also to bring community members in as stakeholders in the research process, share findings with them, and leverage our collaborative efforts to effect structural change.

**4) What specific plans do you have to promote neuropsychopharmacology in the context of BRAD?**

I've been working with the amazing team at BRAD and the previous fellow, Dr. Margaux Kenwood to develop a year-long multifaceted program promoting neuropsychopharmacology across scientists, clinicians, politicians, and the general public. The baseline for these efforts has started by surveying diverse perspectives on animal research—if you're interested in taking the survey and informing these efforts, it's still available by [clicking here](#). We're hoping to extend the range of materials BRAD offers

on their website for education and outreach on animal research, publish op-eds on animal research in the field in collaboration with leading experts, and develop one-page policy memos. These ‘one-pages’ can be used by scientists and other stakeholders to share with their local, state, and federal policymakers to advocate for increased funding for scientific research and legislation that supports and protects the activities of animal researchers specifically. Finally, by getting new organizations, labs, universities, etc. to sign up for BRAD, we hope to continue to expand awareness and knowledge of the field of neuropsychopharmacology to new audiences. If you’d like to sign up to host a BRAD event, you can do so by [clicking here](#).

**5) What specific actions would you recommend that ACNP’s members undertake to successfully advocate for both human and animal research?**

We are all in this field for a reason—a passion for learning and seeking knowledge. I would recommend that ACNP members learn/review the three Rs of animal research, which I believe are really helpful to keep in our back pockets when speaking with anyone who has questions or concerns regarding this work. The three Rs are Refinement—modifying procedures to minimize pain and distress while enhancing animal welfare, Reduction—using strategies that minimize the number of animals used in research and maximizing the information obtained per animal, and Replacement—using methods that avoid or replace the use of animals when possible. I also love the so-called ‘fourth R’ that some folks have recently introduced, Rehousing—the adoption of animals following the completion of their participation in research when possible and appropriate.

For all members seeking to successfully advocate for both human and animal research, I’d advise meeting people where they are and being active listeners in conversation. So much of the time when we enter into a space of debate or learning, we are encountering folks who have some sort of argument or concern rooted in fear and a lack of opportunity for new insights. By listening to their concerns, understanding where these concerns are rooted, and providing transparent insight into the work that we are doing, we can have productive and transformative conversations.