



Endocrine-disrupting chemicals (EDCs) are chemicals that interact with the endocrine system, mimicking, blocking, or interfering with hormones that are essential for basic biological processes. A weak regulatory and testing infrastructure has led EDCs to become common in everyday products, from BPA in plastic water bottles to triclosan, found in some body washes. Little is known about the impact of EDCs on human health, but research indicates that EDCs disrupt development, reproduction, the immune system, and even behavior in both human and non-human animal models. Further research is imperative to figure out the long-term health implications of these chemicals and inform regulations that could prevent further damage. As someone who wants to conduct research that can directly help society and can work to shape therapeutics and policy, this research opportunity is a great fit for me. As part of Dr. Andrea Gore's lab at the University of Texas at Austin, I would contribute to the growing body of research on EDCs, specifically elucidating their effects on reproductive and social behavior, neural circuitry, and neuroendocrine pathways.

As a member of the Gore lab, I would have the opportunity to explore the behavioral effects of EDCs and underlying neurobiological mechanisms. The Gore lab utilizes a wide array of tools at the molecular and cellular level, including qPCR, RNA sequencing bioinformatics, and electron microscopy. Having the opportunity to learn these techniques will equip me for my future as a scientist, providing me with cutting-edge tools to explore research questions.

As part of my research, I would utilize the rat to study the effects of NeuroMix, a mixture of endocrine disruptors created by the Gore lab that mimics the mixture of EDCs present in humans. Specifically, I would explore the effect of EDCs on ecologically-relevant rat behaviors, looking to see whether EDCs impact their social systems and their sexual behavior. I plan to go beyond traditional testing paradigms. For example, the social-preference test allows for a high level of control and efficiency in testing social behaviors, but it does not allow for consideration of complex social dynamics and the multitude of other variables that can impact social behavior. By developing new ecologically relevant tests, I would have the ability to better define the full neural circuitry surrounding behavior. Specifically, through the use of immunohistochemistry and microscopy, I would assess the effect of EDCs on neural circuitry involved in social behaviors, potentially looking at the effects of EDCs on oxytocin signaling systems, which are important for bonding and empathy.

As someone who would like to pursue a Ph.D., the Gore lab will give me unique opportunities to increase my repertoire of research skills and a new discipline. Importantly, it will also help me better understand what it means to do research in a dynamic, NIH-funded R1 lab with a diverse population of graduate students, postdoctoral fellows, and professional and undergraduate students. I look forward to the opportunity to speak to current graduate students and hear their perspectives on graduate school and get potential career advice.