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**The Neurosciences Institute**

*“Regulation of lacrimal gland development and function by homeodomain transcription factor Barx2”*

***Recipient of Student Fellowship Award***

**LAY ABSTRACT:**

The "dry eye" condition is a result of defective function of the lacrimal gland (LG). This can have severe consequences including corneal ulceration and blindness. In the U.S., about six million women and three million men have moderate or severe symptoms of dry eye syndrome. In this study, I will use molecular genetic and cell biology techniques to study lacrimal gland development and function. In this application I have chosen to focus my efforts on understanding the functions of molecules that, according to our preliminary evidence, play critical roles in morphogenesis of the lacrimal gland. I will be studying Barx2 mutant mice to better understand the role of this gene in lacrimal gland function and development.

**SCIENTIFIC ABSTRACT AND RESEARCH PROPOSAL:**

During recent years, research interests in Sjögren's Syndrome (SjS) have increased. The "dry eye" condition is a result of defective function of the lacrimal gland (LG). This can have severe consequences including corneal ulceration and blindness. Despite our long-standing knowledge of dry eye, studies of LG development using techniques of molecular genetics have only recently been initiated. In this application and my future experiments, I have chosen to focus my efforts on understanding the basic function of molecules that, according to our preliminary evidence, play critical roles in morphogenesis of the gland. These include the transcription factor Barx2 and the matrix metalloproteases (MMPs). The experiments proposed will assess the function of these molecules individually but will also determine whether there are regulatory interactions between them.