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A new perspective: Treating patients from the laboratory

Daniel Gilliam

I have always known that I wanted a career through which I would never cease to learn, and my fascination with the scientific enterprise has been fueled by this desire more than anything else. Learning is my favorite activity, but I am also intrigued by the possibility of generating new knowledge and actualizing this knowledge to impact the world in a meaningful way. My experiences in college have changed my vision of a future career from that of a practicing physician to that of a physician-scientist. In an effort to create synergy between my interests in research and in improving clinical outcomes for patients, I am planning to pursue a dual M.D./Ph.D. degree and a career in translational biomedical research.

As soon as I arrived at UAB, eager to begin finding opportunities to learn, I started looking into the work being done here in my chosen field of neuroscience. I read publications from different labs in which I was interested and began to form an appreciation for the sheer breadth of knowledge that I have yet to learn as well as the amount that remains unknown to anyone. One subject in particular—the epigenetic mechanisms underlying memory—stood out as particularly interesting. I identified the lab that appealed to me most and made contact with the principal investigator—Dr. David Sweatt in the Department of Neurobiology.

I started working in the lab, hoping to learn something new, but I was ultimately most concerned with filling another slot on my medical school applications. By learning in classes, engaging in research, and taking advantage of opportunities to experience what a potential career might entail, I gradually came to the realization that I could not picture having a career completely apart from research. In a research setting, where the entire goal is to challenge the boundaries of knowledge and understanding, I could never reach a point where I felt as though I had learned enough. The possibility that some facet of human knowledge could be revealed, at least in part, by my own investigation, is simply too enticing to refuse.

My scientific interests have always had a focal point in medicine, but I only recently discovered that my interest in medicine, while ultimately founded on an interest in helping patients, is largely academic. One of the more prominent experiences that led to this realization came while shadowing physicians. I often found myself considering the clinical presentation of certain conditions from the perspective of a researcher. For example, while observing the cogwheel rigidity and bradykinesia characteristic of Parkinson's disease, I began to speculate about the biochemistry and neuropathology underlying these symptoms. The questions I later posed to the physician explored these causal factors, and I pursued discussion related to the development of potential treatments and the voids that remain in our understanding. During such discussions, and as I later perused relevant scientific literature, I became increasingly aware that future treatments for patients will ultimately derive from work being done in laboratories at this moment, and that I could play a role in the development of these treatments.

My experience so far in Dr. Sweatt's laboratory has proved tremendously helpful in shaping my career aspirations. I am currently working on a project investigating the epigenetic aberrations, molecular perturbations, and cognitive deficits evoked in the brain by diet-induced obesity as well as potential methods to mitigate these defects in a mouse model. My work requires an average of fifteen hours per week in the lab, and although the time commitment required to receive the full benefit is substantial, this challenge has been immensely rewarding. This experience has introduced me to many of the key concepts and investigative techniques involved in biomedical research; just as importantly, my time in the laboratory has exposed me to what a future in research may entail. In a world where so many questions await answers and so many patients await new treatments, it is clear that we need physician-scientists. I intend to take advantage of the opportunity to work between these increasingly connected worlds of research and medicine.

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