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Friends of the Library Research Award

I wrote a paper proposing a pathway for how mitochondrial dysfunction plays a role in the pathogenesis of Autism Spectrum Disorder (ASD) for Biochemistry. The previous semester I had written a paper examining the role of Glia in ASD. While researching that paper I found many sources referencing mitochondrial dysfunction and when I had the opportunity to do a biochemical research project I knew I wanted to continue working within the sphere of ASD pathogenesis.

I started by re-reading my old paper and looking at the sources that mentioned mitochondria. Re-reading and reviewing my old research helped me orient myself to what the general scope of my paper was going to be. I then found a book source through OBIS (Goodenowe & Pastural, 2011) that reviewed the current knowledge of the biochemical basis of ASD and its pathology. This was an incredibly helpful source that I found essential for understanding the general knowledge of ASD's biochemistry. I also looked through the book's sources to figure out what papers were important in the subject matter. From the book's sources, I started with three that seemed to relate to my topic and were recently published. Through examining the sources' sources and looking at papers that had cited the sources I pulled from Goodenowe & Pastural I compiled a list of fifteen references that seemed like they would get me started and have most of the foundational knowledge that I needed.

With the fifteen sources, I created an annotated bibliography. After reading all of my sources and writing the annotated bibliography I started drafting a rough outline of what I learned about the process and creating drafts of potential mechanisms. From the mechanism drafts, I started looking more closely at the separate parts of the mechanism, I used JSTOR and OBIS to dive into cytokines, inflammasomes, and reactive gliosis. I also requested an article through an interlibrary loan. I focused on keywords and finding key articles for each part of the mechanism because when I searched for those words within the context of my article there were not many papers that helped me. I focused on the connections I could make between the parts of the mechanism and the pathology of ASD. At this point, I started talking more with my professor and checking the mechanism with her to see if she thought it was reasonable.

At this point, I started writing my paper. I put everything together as best I could and made a note of where I had holes in my mechanism. I used the citations from the sources relating to the parts of the mechanism that I had holes in. If I didn't find the information needed from the papers that were cited in the articles or other articles that cited the source I was working from then I used keywords in the subject-specific database Biosis Citation Index. It took a lot of work to find some of the information I needed, I went through so many articles for just a couple of sentences of pertinent information. Towards the end of my research project, I knew what information I was looking for I just needed small pieces to connect my puzzle.