Edison Symons

FURSCA End of Summer Report

My research is focused on the synthesis of photoswitchable c-Raf inhibitors. C-Raf is a major oncogene in biology as various cancer subtypes. Previous research has completed the synthesis of two compounds, however, these compounds didn't work due to poor photodynamic behavior or limited bioactivity. My main goal was to try and synthesize a new compound (Compound 3), which we hypothesized to display both beneficial bioactivity and photokinetic behaviors. Once the synthesis of this third compound is complete our goal is to test the photochemical behavior and determine if the compound has the ability to act as a light responsive inhibitor.

Over the course of the summer, I found out how long and concise research actually can be. Below, I attached two different figures and those are the two different routes I took in order to try and find a synthesis for my compound. We ran into several problems in the process as many reactions needed very specific precautions and one mess up required a complete restart on the reaction. For example, many of these reactions were air sensitive and needed to be run at a specific temperature for upwards of 24 hours. With that being said, through continued practice, I was able to complete the first three steps of both **Figure 1** and **Figure 2**. This overall wasn't the major goal of my summer research, however, it was a huge step for me and my research as I was able to add a protecting group to each of my partially synthesized compounds. Allowing me to further upscale each reaction and generate more product. Now, I'm able to take multiple attempts at the synthesis of the final end compound without wasting time and all of the product I had initially created.

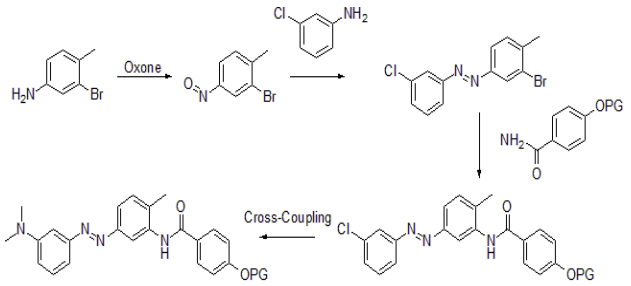

Figure 1.(Route 1 of "Compound 3" synthesis.)

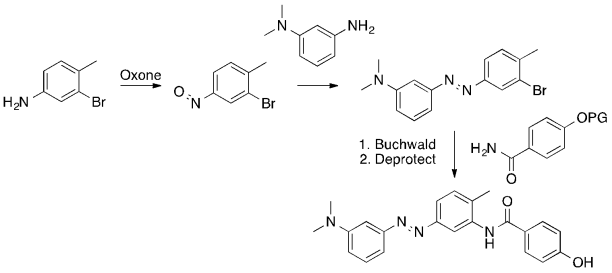

Figure 2. (Route 2)

This project has widened my knowledge on research as a whole both at Albion and the real world. I have done research for two semesters, however, it is like 6-8 hours a week. Through FURSCA, I was able to feel what a real workday would be like as a full time researcher. I was able to learn the real impact I can have in research when spending countless hours in the lab and the feeling of both success and failure. I also plan on presenting my research at Elkin Isaac to hopefully pass along newfound information. Overall, FURSCA has provided me with a once in a lifetime experience that has made me strongly consider switching to research as a career and has

shown me the impact that research can truly have on the world. As a final conclusion, I would like to give a huge thank you to FURSCA, Dr. Streu, and all of Albion College for providing me with top of the line equipment and everything I could ever need to be very successful in the lab!

<u>To the Lawrence B. '72 and Frances Schook Research Fund in FURSCA</u> - Thank you for giving me the opportunity to participate in Albion's FURSCA program this summer. This summer provided many benefits that will greatly influence my future education and research endeavors. Thank you!

Below I've attached some extra pictures that were a part of my research and I thought they were too cool not to share!