

**Samuel Bernhard: Chemistry & Biochemistry**

**Mentor: Mary Cloninger -- Chemistry & Biochemistry**

***Analysis of GAL3 and Lactose functionalized PAMAM Binding by EPR***

In order to better understand the binding characteristics between lactose functionalized PAMAM dendrimers and the galactoside lectin Galectin-3, the synthetic production of heterogeneously functionalized TEMPO and Lactose PAMAM dendrimers were undertaken. To analyze the relevant lectin/ carbohydrate relationship, these dendrimers will be subjected to electron pair repulsion (EPR) studies. The implication of analyzing several dendrimer generations through EPR is that a quantitative understanding of the relationship between dendrimer size/ degree of functionalization and binding strength can be determined. In terms of progress, a significant portion of the synthesis has been completed. Optimized yields have been determined and characterization has been completed on the reactions that lead to the production of the Lactose tether.