



Elizabeth C. O'Quinn
B.S Wofford College 2006
Major: Biology
Minor: Computational Science

Faculty Advisor: Dr. Angela B. Shiflet

Program: Research Alliance in Math & Science

Email: oquinnec@ornl.gov
Home: oquinnec@wofford.edu

Research Area: Computational Biology/Enzyme Kinetics

In arterial aneurysm formation, the biochemical reactions of matrix metalloproteinase-2 (MMP-2) and matrix metalloproteinase-9 (MMP-9) are known to play a vital role in the process of collagen, gelatin and elastin breakdown which lead to the ballooning of the artery and eventual rupture. After investigation and implementation of a MMP-2 model in the literature, my project is to develop a similar model for MMP-9 and integrate the MMP-9 and MMP-2 models. This project also has important implications for other disease process involving matrix metalloproteinases such as angiogenesis in tumor formation and some orthopedic diseases.

Research Mentor:

Kara Kruse
Modeling and Simulation
Computational Sciences and Engineering Division
Oak Ridge National Laboratory
(865) 574-5154
krusekl@ornl.gov