



***Patrick M. Keating – Dr. Jean K.
Boek Memorial Scholar***

***1st year scholar, PhD Candidate,
Biochemistry
University of Maryland***

Research:

Patrick's research investigating the influence of protein-protein and protein-lipid interactions on the membrane fusion mechanism of the Lassa virus. Elucidating novel insights into the critical viral infection step by characterizing the structure and interaction of the viral membrane proteins with each other and with the viral and host cell membrane lipids.

Indicate how an ARCS award will benefit your research:

The ARCS award would allow me to focus on my research for the remainder of my time in the PhD program. For most of my time in the program, I have served as a teaching assistant to cover my stipend. While I have enjoyed the role and teaching the undergraduate students, the time commitment for the role reduces the amount of time I can focus on my research. With the ARCS award, I will not have to serve as a teaching assistant and could focus solely on my research. Since I am nearing the end of my time in the program, this would allow me to finish my project and complete my PhD without other financial concerns or significant time commitments outside of the lab.

Career objectives:

Even before starting the PhD program, I had an interest in medicine. I was planning on pursuing a medical doctorate before becoming more interested in research. Fortunately, my research project is medically related. When I graduate, I plan to pursue a career in medical research, helping to design or discover therapeutics to treat or prevent disease. Using my training in biochemistry and background in viral membrane proteins, I want to work on designing treatments for viral infections or other diseases related to membrane proteins. The ultimate goal for me is to become the manager of a research team where I can guide the research of a treatment for a disease.

Describe the expected benefit of your research to society:

The expected benefit is a deeper understanding of the membrane fusion mechanism of the Lassa virus which can be used to develop therapeutics against the viral infection. Currently there are no FDA-approved therapeutics for Lassa fever, the illness caused by Lassa virus infection. Since it afflicts western Africa annually with high rates of morbidity and mortality, it poses a serious public health threat should it spread outside the area. As such, the WHO has listed the Lassa virus as a top 5 infectious disease requiring prioritized research.