



## ***Ashley M. Frankenfield***

### ***Willard and Marilyn Sweetser Scholar***

*2<sup>nd</sup> Year Scholar, PhD Candidate in  
Chemistry from George Washington  
University*

#### **Research:**

Ashley's research focuses on the development of new analytical chemistry methods using mass spectrometry techniques to identify and quantify thousands of proteins simultaneously in biological systems, and the application of these methods to discover candidate disease biomarkers and molecular mechanisms underlying neurodegenerative diseases.

#### **Describe the expected benefit of your research to society:**

Neurodegenerative disorders, such as Alzheimer's disease, are quickly becoming one of the leading causes of death within the United States. Currently, there is no cure for these disorders, but rather only treatments to slow down the progression. My research has the potential to benefit society by enabling the discovery of new biomarkers for neurodegenerative disorders. Discovering biomarkers is critical to the development of treatments. While these methods will be initially applied to neurons, they will also be applicable to other cell types and disorders allowing scientific innovation.

#### **Indicate how an ARCS award will benefit your research:**

The ARCS award will allow me to focus on research without concerns for financial limitations. As a member of a newly established lab, I've been trained on cutting-edge techniques and have been motivated by my mentor to innovate new methods. This award will allow me to further innovate and optimize new methods that will allow the detection of biomarkers with a high rate of specificity.

#### **Career objectives:**

While completing her PhD, I seek to gain the knowledge and skills needed to pursue a career in academia. I hope to one day have my own mass spectrometry lab, where I can further research the underlying causes of neurodegenerative disorders and mentor future researchers.

#### **Ashley's Recent Publications:**

- **Frankenfield, A. M.**; Ni, J.; Ahmed, M.; Hao, L. Protein Contaminants Matter: Building Universal Protein Contaminant Libraries for DDA and DIA Proteomics., Submitted, **2022**.
- **Frankenfield, A. M.**; Ni, J.; Hao, L. Characterization of Neuronal Lysosomes Interactome with Proximity Labeling Proteomics. Submitted, **2022**.
- Li, H.; **Frankenfield, A.M**; Houston, R.; Sekine, S.; Hao, L. Thiol-cleavable Biotin for Chemical and Enzymatic Biotinylation and its Application to Mitochondrial TurboID Proteomics. *J. Am. Soc. Mass Spectrom.* **2021**, 32, 9, 2358–2365.