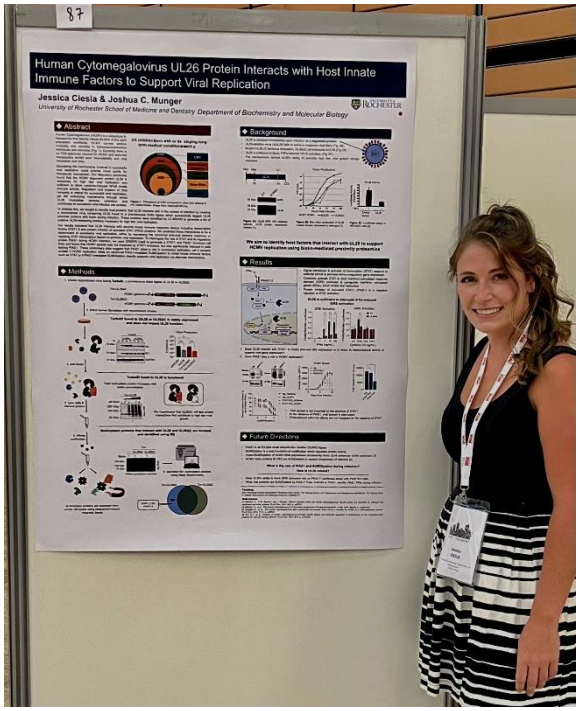
In July 2022, I attended the 10th Congress of the International Society of Symbionts (ISS) and 3rd International Conference on Holobionts in Lyon, France to present part of my PhD thesis project. This congress featured a diverse array of topics, including viral interactions in the holobiont, emerging tools to study symbiosis, and marine holobionts. The ISS conference was a perfect opportunity to display my current area of research, i.e. mechanisms of viral infection, while networking in a new field. I gave a poster presentation on using biotin-mediated proximity-based proteomics to identify host factors that interact with viral proteins during infection that support high titer viral replication. My results suggest that the Human Cytomegalovirus (HCMV) UL26 protein interacts with members of the JAK/STAT innate immune system pathway, suggesting a mechanism wherein UL26 manipulates the host innate immune system to support viral replication.




I have been actively searching for post-doctoral opportunities to study the underlying mechanisms of coral symbiosis. Corals of the phylum *Cnidaria*, establish a mutualistic symbiotic relationship with photosynthetic dinoflagellate algae of the family *Symbiodiniaceae*. These dinoflagellates are endocytosed by cnidarian cells, which give corals their vibrant colors and provide the coral cell with fixed carbon while the coral cell provides inorganic nutrients to the symbiont. The resulting reef structure provides an oasis to foster marine biodiversity and is a major contributor to costal economies through ecotourism. Coral reefs are under threat. The symbiotic relationship between cnidarian and dinoflagellate is essential for coral health and is highly sensitive to stress. Global climate change has caused an abrupt increase in ocean temperatures sufficient to disrupt cnidarian-dinoflagellate symbiosis. The algae is expelled from the coral cell, resulting in a visual loss of color in a process commonly referred to as 'coral bleaching'. Without their algal symbionts to supply fixed carbon, corals cannot meet the energetic demands to sustain life, leading to coral mortality and the ultimate collapse of the coral reef ecosystem.

While the symbiotic relationship that is established by dinoflagellate invasion of cnidarian cells is more mutualistic than parasitic, the establishment of symbiosis - one organism living inside another - is reminiscent of viral infection. The innate immune system which I study in the context of viral infection is also activated and repressed at different stages of symbiosis in corals, yet many questions remain on the underlying mechanisms involved. I aim to use genetic and biochemical tools to identify cellular factors that contribute to the establishment, maintenance and breakdown of symbiosis to produce novel approaches to increase resistance, resilience and recovery in the face of bleaching to preserve coral reef ecosystems.

By attending the ISS congress, I was able to meet a number of graduate students, post-doctoral fellows, and primary investigators to discuss the most up-to-date research in their labs and in the coral symbiosis field. I attended several seminars from various fields, which was invaluable to my education, particularly because I was able to observe how labs in different fields address scientific questions. One speaker particularly relevant to me was Dr. Forest Rohwer, a viral ecologist who studies the overlapping mechanisms of human respiratory viral infections and symbiosis in corals. I was also able to meet Dr. Lauren Fuess, who presented on the complex association between immunity and symbiont density in corals. Attending these and many other presentations as well as having discussions with members of the coral symbiosis field have greatly helped me establish a network and develop aims for an NSF fellowship that I am currently writing. As a whole, attending this conference has greatly contributed to my education. Thank you to GWIS for helping to support my travels to this amazing conference!