**Genomics of dehydration tolerance in the liverwort, *Marchantia inflexa***

 Adaptive mechanisms to cope with water stress are highly relevant in light of current and predicted climate change. Our work is motivated by an interest in understanding the strategies by which plants endure limited and variable access to water. Vegetative dehydration tolerance (DhT, also dehydration tolerant) is a relatively rare strategy for coping with water shortage that allows photosynthetic tissues to survive considerable cellular drying. DhT provides a unique opportunity to identify key genes, physiological, and ecological traits that can inform management and biotechnological practices aimed at reducing crop and species loss due to drought. Here, we take a within-species approach, minimizing background differences and allowing us to generate a high-quality set of candidate genes that may increase DhT. Our recent studies indicate that *Marchantia inflexa*, a tropical liverwort, exhibits moderate and variable levels of DhT. Furthermore, *M. inflexa* can acclimate to different climatic moisture levels, suggesting a plastic component to DhT in this species.Finally, we recently demonstrated that males of this species are significantly less DhT than females. Based on these observations we designed and conducted both genome and transcriptome sequencing studies to characterize sex differences in the presence and coverage of DhT genes, as well as changes in gene expression during dehydration and rehydration across the sexes and tissues. Ultimately, we present a set of candidate genes that may explain underlying differences in DhT.