

# Quantitative proteome profile of water deficit stress in eastern cottonwood (*Populus deltoids*) leaves identifies key regulator

## Background

- Drought stress is the greatest limitation to *Populus sp.* productivity. Among the North American poplar species, *P. deltoides* is one of the most drought tolerant.

## Approach

- Investigate the dynamic regulation of the *P. deltoides* leaf proteome in response to different types of water deficit to identify the underlying mechanisms for drought tolerance

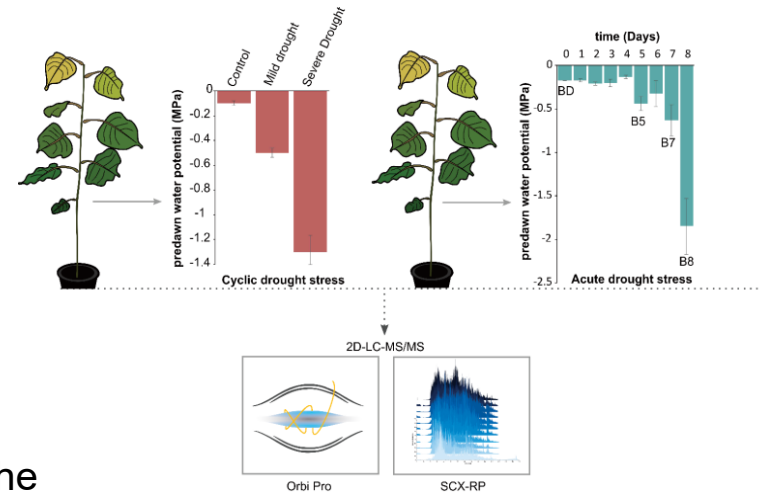
## Outcome

- This study provides the most comprehensive insight into the proteome drought response to date. This direct comparison between two drought conditions identified a transcription factor that serves as a **major, universal regulator of drought response in *Populus* species.**

## Significance

- Understanding the genetic and molecular basis of drought-tolerant traits provides a critical resource for the genetic improvement of *Populus* for enhanced sustainability as a biofeedstock for biofuels and bioproducts.

## Two water deficit conditions characterized by mass spectrometry-based proteomics



## Largest *Populus* drought-related proteome resource details two contrasting molecular signatures of drought response

