

# Developing Novel Probes to Study Arabinogalactan Proteins in the Plant Cell Wall

## *Seminar*

Monday

Sept. 30 2024

3:00 – 4:00 p.m.

Beaupre Center,  
Room 105

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Plants make up the abundance of living material on the planet, and their cell walls are the focus of many investigations. Plant cell walls are primarily composed of polysaccharides, proteins, and glycoproteins. One such class of glycoproteins are AGPs which are cell surface glycoproteins involved in multiple cellular processes such as cell growth, cellular signaling, and cell fate determination. However the molecular mechanism of these functions is poorly understood. This lack of understanding hinders studies relating to the development of plant mutants which may better tolerate the harsh conditions brought about by climate change. The ability to perform real-time fluorescent localization studies on AGPs would help plant biologists better understand the role of AGPs in plants. The current toolbox of AGP binding probes consist of monoclonal antibodies and a class of small molecule dyes known as the Yariv reagents, however these probes are ineffective for real-time fluorescence imaging. This seminar will discuss the synthesis of a novel azide modified Yariv reagent suitable for construction of second-generation Yariv reagents via click reaction. The synthesis of a fluorescent analog of the  $\beta$ -D-glucosyl Yariv reagent will be discussed as well as fluorescence microscopy studies performed both in vitro and in planta.