Development of Crucial Tools for Lignin Research

Yimin Zhu[1,2]* (zhu6@wisc.edu), Allison Mohammadi,[1] Timothy Pearson,[1] Ruili Gao,[1] Yuki Tobimatsu,[1] Matthew Regner,[1] Fachuang Lu,[1,2,3] Hoon Kim,[1,2,3] **John Ralph**,[1,2,3] Michael Hahn,[4] Fang Chen,[5] Richard A. Dixon,[5] Steve Decker[6]

[1]Department of Biochemistry, [2]DOE Great Lakes Bioenergy Research Center, [3]Wisconsin Bioenergy Initiative, University of Wisconsin, Madison, WI; [4]Complex Carbohydrate Research Center, University of Georgia, Athens GA; [5]Noble Foundation, Ardmore, OK; and [6]National Renewable Energy Laboratory, Golden, CO

Project Goals: The goal of our project is to develop crucial tools to address key challenges in lignin research.

Lignin is one of the main and essential biopolymers in vascular plants. It is among the prime barriers against effective utilization of agriculturally important plants, particularly their cell walls, in processes such as ruminant digestibility, biofuels production from lignocellulosics, and pulp and papermaking. One of the main problems in lignin research is the lack of powerful modern methods to answer fundamental and practical questions, such as the structural attributes of the complex biopolymer. This poster delineates our efforts in developing monoclonal lignin antibodies and polymer-supported lignin monomers and oligolignols to aid in localization and analysis of lignins and for delineating relative radical cross-coupling propensities of the various phenolics involved in lignification. We anticipate these tools will find a wide range of applications in cell wall research to help explore today's most pressing and recalcitrant problems in bioenergy research.

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