

P3-108 : “Metabolomic and genomics empowered platform for phytochemical and gene network discovery in *Medicago truncatula*”

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Abstract:

Plants have an extraordinary ability to synthesize a large, diverse array of organic compounds, known as secondary metabolites or phytochemicals. Plant phenolics are belong to the largest group of the three major secondary metabolites in plants, consists of nearly 10,000 compounds. Many of the phenolics such as phenylpropanoids, flavonoids and isoflavonoids are not only play important roles in plants, they are also important natural antioxidants used in food, or antimicrobial/anticancer agents in medicine. Therefore, improving the health-promoting phytochemicals in crop products would be benefit greatly to Arkansas agriculture, medicine and biotechnology industry.

The purpose of this project is to develop an effective metabolomics and genomics empowered platform. Using this platform we will (1) discover novel phytochemicals in the seed coats of *Medicago truncatula*, which are important in medicine and human nutrition, (2) identify their biosynthesis pathways and related gene networks, (3) identify the genes and gene network that are involved in compartmentation and storage of identified important phytochemicals.