The focus of Dr. Miller’s research is to characterize and exploit microbial metabolism for improved activation of dietary compounds, improved health benefits from fermented foods, and production of sustainable value-added metabolites.

**Research Interests**

- Microbial metabolism of dietary bioactives (glucosinolates)
- Identification and exploitation of Lactic Acid Bacteria metabolites that contribute to the health benefits of fermented foods
- Development of genetic tools for Gram-positive bacteria
- Application of precision fermentation for sustainable production of food and food ingredients

**Current Projects**

- Enhancing the benefits of brassica (USDA – NIFA)
- Optimizing bioactive metabolites in fermented foods to improve human immune function (USDA – NIFA)
- iPreFers (Illinois Center for Precision Fermentation) and PreFers (Centre for Precision Fermentation and Sustainability)

**Keywords**

Precision fermentation, food fermentation, Lactic Acid Bacteria (LAB), Lactobacillus, glucosinolates, sulforaphane, Cas9

**Interest Areas for Collaboration/Future Work**

Dr. Miller is interested in working with scientists interested in exploring the health benefits of fermented foods. Furthermore, he is very interested in intestinal bitter-taste receptors and their role in the health benefits of brassica vegetables.