

## Effects Of Soy Peptide On Dendritic Cells

**Kaylee Shipman**<sup>1</sup>, Chun-Yu Tung<sup>1</sup>, Ling Han<sup>1</sup>, Amy Patel<sup>1</sup>, Caleb Corn<sup>1</sup>, and Hua-Chen Chang<sup>1</sup>

<sup>1</sup>Department of Biology, 723 West Michigan Street, Indiana University-Purdue University Indianapolis, Indianapolis, IN 46202

Innate immunity is mediated by effector cells, including NK cells, dendritic cells (DCs), macrophages, and polymorphonuclear phagocytes, which can respond immediately after activation through receptors encoded by germ-line genes. Innate immune responses represent the first line of defense in immunosurveillance. Interventions that enhance the functions of innate immunity will be an important armamentarium to human health. We recently exploited a natural dietary soy peptide called lunasin to improve the immune functions. The hypothesis was that lunasin peptide has stimulatory effects on immune cells. To test this hypothesis, human peripheral blood mononuclear cells (PBMCs) of healthy donors were stimulated with or without lunasin. We found that lunasin is capable of stimulating DCs to up-regulate chemokines (CCL2, CCL3, and CCL4), cytokines (TNF $\alpha$  and IFN $\alpha$ ), and co-stimulatory molecules (CD80, CD86). In addition, lunasin-treated DCs can provide NK with required signals for activation. Taken together, our results support the immunomodulatory activity of soy peptide on DCs, which leads to enhancement of innate immunity.

Mentor: Hua-Chen Chang, Department of Biology, Indiana University- Purdue University Indianapolis, Indianapolis, IN