**AB1070 Development of anti-atherogenic milk to improve human health**

**U of A: Spencer Proctor**

**October 2010 – December 2013**

**AM Funding: $21,275 Total Funding: 205,910**

**Funding Partner: AFC (CAAP)**

Background: Trans-11 vaccenic acid (VA) accounts for 70% of trans fatty acids in ruminant derived fat and is the precursor of cis-9 trans-11 conjugated linoleic acids (CLA) which has health benefits for humans. VA enriched butter has beneficial effects on cardiovascular disease and dairy products are the predominant natural source of VA. Fortification of dairy fat with synthetic VA could increase the health value of dairy derived saturated fatty acids.

Objectives:

* Develop a feeding regime (oil supplementation) to increase VA and CLA in milk
* Determine if enriching dairy derived fat with synthetic VA may increase the health value in rates with metabolic syndrome

Methods:

* Cows were supplemented with either poly unsaturated fatty acids (sunflower oilseed or canola oilseed) or fish oil.
* Rats with metabolic syndrome were fed fats enriched with VA

Outcome:

1. Concentrations of VA and CLA in the milk were consistently increased by sunflower oilseed supplementation
2. Fortification with VA alleviates the symptoms of metabolic disease by favorably altering fat distribution and intestinal metabolism. VA also alleviates ectopic lipid accumulation and may have implications for inflammatory bowel disease.

Recommendation: Increasing VA content, naturally or artificially, may maximize the health value of dairy derived fats.

Benefits to industry: Providing a strong rationale to include dairy products in the diet component of the Alberta Plan for Eating and Exercise. Commercialization of CLA enhanced products. Better production efficiency, fat deposition and animal health.

KTT:

* Website created
* Multiple news releases, invited talks, citations in other work and 1 paper published