

Table 1. Highlights from the first CAMTech projects

Mechanisms of transcytosis across the insect gut

- Increased understanding of protein movement across the insect gut epithelium, for potential exploitation for pest control.

Characterization of digestive proteases and nucleases in stink bugs

- Delineation that proteases and nucleases in stink bug saliva and gut radically differ, presenting major stability challenges for stink bug bioactives.
- Stink bug gut and salivary gland proteome and transcriptome datasets are available to members.

Mechanisms of RNA interference

- Elucidation of physiological factors that restrict the use of RNA interference to certain pest species.

Toward increased efficacy of soybean cyst nematode management tools

- Microfluidic chemotaxis chip-based assays to examine the impact of management products on soybean cyst nematode biology are available to members.

Establishment of midgut cell lines from select pest insects

- Development of midgut cell lines from key pests is underway.

Enveloped porous nanoparticles for RNA delivery to insects

- Uptake and delivery of RNA bioactives by nanoparticles is being examined.

A toolkit to explore soybean cyst nematode genomic diversity

- Molecular identification of soybean cyst nematode populations to aid in the efficient selection of soybean varieties and for appropriate application of chemical nematicides.

Integrating IPM into IRM theory for improved resistance management and pest suppression

- Development of new models that integrate IPM tactics, specifically biotic mortality factors into current IRM models.

Understanding dispersal by western corn rootworm: effects of larval density on flight and effect of flight on female reproduction

- Effects of larval density on flight behavior and the effects of flight on female reproductive output.