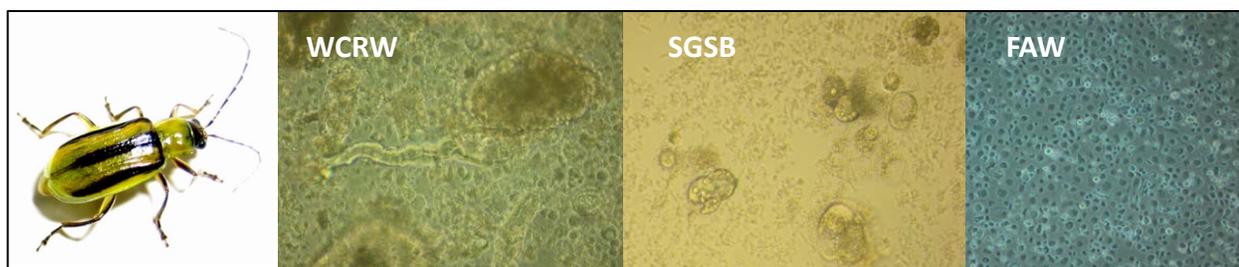


NOVEL TARGET SITES

Establishment of Midgut Cell Lines from Select Pest Insects



DESCRIPTION

Established insect cell lines provide powerful tools toward development of novel pest management technologies. These cell lines are used in

- high throughput screening programs for novel insecticidal activities,
- mode of action studies,
- basic research to address fundamental questions in insect biology.

Cell lines derived from the midgut that retain midgut epithelial cell characteristics are of particular value as research tools. During the first two years of the project, insect midgut cell lines are being generated from four target insect species of agricultural importance: fall armyworm (FAW), western corn rootworm (WCRW), southern green stink bug (SGSB) and green stink bug. To date, two midgut cell lines from FAW larvae have been established, with new lines initiated from WCRW, SGSB, and green stink bug. In year 3, the midgut cell lines will be characterized with lines authenticated, doubling time determined, and responses to selected *Bacillus thuringiensis* (Bt) toxins assessed.

HOW THIS IS DIFFERENT THAN RELATED RESEARCH

The extensive experience of this lab in establishing and curating dozens of insect cell cultures is unique with established cell lines supplied to university, government and private sector groups worldwide. Few midgut cell lines exist and none with the typical midgut epithelial cell characteristics needed by industry partners.

This project differs from others because most existing midgut cell lines have not been characterized in terms of specific functionalities important to the agricultural industries. The impact of crop protectants on newly established midgut lines will be determined.

MEMBER BENEFITS

Access to new midgut cell lines valuable to discovery research programs for:

- novel target site identification
- enhanced screening assays
- mode of action studies
- basic research