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 insect 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.

Insect cell lines are being generated from four target species: fall armyworm (FAW), western corn rootworm (WCRW), southern green stink bug (SGSB) and green stink bug (GSB). There were no cell lines from the latter three species prior to this project.

Two cell lines from the FAW midgut and two from WCR larvae have now been established. Two primary cultures from SGSB eggs are highly promising for generation of immortal cell lines.

**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 academic institutions, government entities 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 has resulted in cells lines derived from the FAW midgut, and the first immortal cell lines from WCR and SGSB.

**MEMBER BENEFITS**

New insect cell lines, including those from midguts, are valuable to discovery research programs for:

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

This material is based on work supported by the National Science Foundation under Grant No. 1338775. Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.