NEW INSECT SF9-ET CELL LINE FOR DETERMINING BACULOVIRUS TITERS

SUMMARY (1024-CHARACTER LIMIT)

The National Cancer Institute (NCI) seeks licensing partners for a novel modified insect cell line, Sf9-ET, that can quickly and efficiently determine baculovirus titers during the expression of recombinant proteins from a baculovirus-based protein expression system.

NIH REFERENCE NUMBER

E-009-2008

PRODUCT TYPE

- Research Materials

KEYWORDS

- Immune, Inflammation, Insect Cell Line, Baculovirus, Protein Expression Sf9-ET, Baculovirus Titer, Esposito

COLLABORATION OPPORTUNITY

This invention is available for licensing.

CONTACT

- John D. Hewes
  NCI - National Cancer Institute

  240-276-5515

  John.Hewes@nih.gov

STATUS

Active

DESCRIPTION OF TECHNOLOGY

The baculovirus-based protein expression system has gained increased prominence as a method for expressing recombinant proteins that are used in a wide range of biomedical applications. An important step in the use of this system is the ability to determine the virus infectious titer, i.e., the number of active baculovirus particles produced during an infection of the insect host cell. The current “gold standard” methods used for determining baculovirus titers, such as the plaque and end point dilution assays, can be costly, take a long time to complete (up to 7-8 days), and are sometimes difficult to interpret as they involve observing the cytopathic effects (CPE) that baculovirus infection has on the infected insect host cell.

To solve these problems, researchers at the National Cancer Institute (NCI) have developed a modified insect cell line, Sf9-ET, to genetically express the green fluorescent protein (GFP) when infected with baculovirus. In these cells, the gene for GFP is placed under the control of a baculovirus promoter so that the cells express GFP when they are infected with the virus. The baculovirus titer can then be quantitated from the level of GFP expression in the insect host cell. The results are obtained within 3 days compared to the 7-8 day period typical of the traditional CPE-based methods.

The GFP-based system is capable of replacing the traditional methods as it is faster, more accurate, and may be less expensive than the currently used systems. This proprietary technology can become an indispensable tool for the quantitation of baculovirus titers; a step that is important in the production of recombinant proteins and vaccine like particles (VLPs) for academic and commercial purposes.

POTENTIAL COMMERCIAL APPLICATIONS

- Baculovirus-based recombinant protein expression

COMPETITIVE ADVANTAGES

- Fast, accurate, and inexpensive determination of baculovirus titers for protein expression

INVENTOR(S)

Ralph Hopkins (NCI), Dominic Esposito (NCI)

DEVELOPMENT STAGE

- Prototype

PUBLICATIONS

Hopkins R, et al. A rapid method for titrating baculovirus stocks using the Sf-9 Easy Titer cell line. [PMID 19852765]

PATENT STATUS

- **Research Material:** NIH will not pursue patent prosecution for this technology

THERAPEUTIC AREA

- Cancer/Neoplasm
- Infectious Diseases
- Immune System and Inflammation
- Eye and Ear, Nose & Throat
- Hormonal Systems, Endocrine, and Metabolic Diseases
- Cardiovascular Systems
- Gastrointestinal
- Kidney and the Genitourinary
- Musculoskeletal

- Reproductive
- Skin and Subcutaneous Tissue
- Metabolic Disease