Auburn University

Innovation Advancement & Commercialization

Landscape Phage as Bio-Recognition Elements in Biosensors

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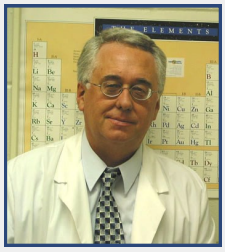
Reference: Landscape Phage

Lead Inventor



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Status

- Phage developed against anthrax and salmonella
- Technology has been experimentally verified for binding and thermal stability

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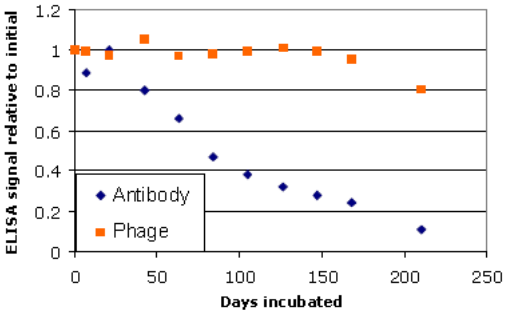
Overview

Auburn University is seeking licensees for a technology using landscape filamentous phage as a bio-selective element for biosensors. As superior substitutes for antibodies, phage demonstrate many features such as high affinity for the analyte, field stability, and low cost. These novel bio-selective elements allow for development of a new generation of biosensors for food safety, medical, environmental, and agricultural applications for real-time monitoring. This technology has potential applications in the following economic sectors:

- Biosensors
- Forensics and diagnostics
- Homeland security and manufacturers
- Pharmaceuticals and therapeutics

Advantages

- Low cost of production
- Higher affinity than antibodies
- Higher thermostability than antibodies



Binding of beta-galactosidase to phage and antibody after incubation at 37°C. Phage shows clearly superior thermal stability.

Description

Landscape filamentous phage might be considered as a type of submicroscopic "fiber." Each phage clone has unique surface properties capable of selective binding to desired targets. Billions of fibers can be constructed simultaneously, propagated in a single vessel, with portions of this enormous population distributable to multiple end-users with many different goals.

The thermal stability of landscape phage probes is quite high and considerably greater than antibody based probes. For example, antibody based beta-galactosidase probes lose their functionality after 24 hours at 63°C, while phage based probes retained their binding ability for more than 6 weeks at the same temperature. Thus, the phage probes are highly thermostable and function even after exposure to high temperatures during shipping, storage and use. Long-term thermal stability has also been demonstrated (see figure).

Compositions and methods have been developed for the identification, detection and isolation of *Salmonella* bacteria. These compositions are useful for the delivery of a wide variety of compounds that inhibit or kill *Salmonella* cells. More recently, phage have also been developed for the identification, detection and isolation of *B. anthracis* spores. Phage probes may serve as robust substitutes for antibodies in the detection of biological threat agents including *B. anthracis.*

Licensing Opportunities

- Issued U.S. Patent 7,670,765
- Either or both of these patents are available for immediate non-exclusive licensing through Auburn's customizable "Ready to Sign" licensing program.
- Similar patents are available in the Biosensor Technology field.