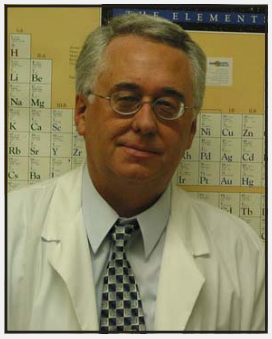
Office of Technology Transfer

Auburn University

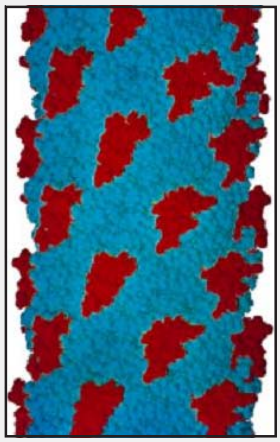
Contact

Brian Wright
Auburn University
Office of Technology Transfer
334-844-4977
brian.wright@auburn.edu
http://ott.auburn.edu/
Reference: Phage Sensors

Lead Inventor



Dr. Valery A. Petrenko
Professor
Department of Pathobiology



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Landscape Phage as Bio-Recognition Elements in Biosensors

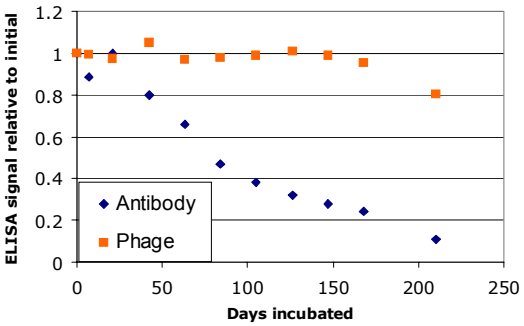
Overview

Auburn University is seeking a licensee or development partner for a technology using landscape phage as a bioselective 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 new bioselective 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 initiatives
- Food processors and manufacturers
- Pharmaceuticals and therapeutics

Advantages

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



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

Description

Landscape 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 concentration and detection of biological threat agents including *B. anthracis*.

Status

- Issued U.S. Patent 7,267,993. Related U.S. Patent: 7,138,238.
- This technology has been experimentally verified for binding and thermal stability
- Phage have been developed against anthrax and salmonella

Licensing Opportunities

- This technology is available for exclusive or non-exclusive licensing
- Joint development opportunities include funded research or a joint venture