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Method for Immobilizing Active Bacteriophages on a Polymer Surface

A polymer-based bacteriophage system quickly and effectively captures and eliminates foodborne bacteria, improving pathogen detection and food safety.

In the U.S. alone, manufacturers spend $2.9 billion each year on food safety tests. Despite significant advances in food safety technologies, foodborne illnesses are more prevalent than ever. The Centers for Disease Control and Prevention (CDC) estimate that each year about 48 million Americans are affected by foodborne illness, 128,000 are hospitalized, and 3,000 die. The detection of pathogens to prevent foodborne illness must be improved. There is an urgent demand for sensitive, rapid, cost-effective, and widely translatable technologies to immobilize active bacteriophages that lead to foodborne illness.

In response to this demand, researchers at Purdue University have developed a method of attaching active bacteriophages to the surface of a polymer. The attached bacteriophages are used to immobilize and kill targeted bacteria when contact is made between the bacteria and the bacteriophages.

Advantages:

-Increased sensitivity and detection limit for electrochemical sensors

-Faster response time

-Ability to selectively sense many different biomaterials

Potential Applications:

-Food Safety

TRL: 5

Intellectual Property:

Technology ID
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Category
Agriculture, Nutrition, & AgTech/Food Safety & Traceability
Biotechnology & Life Sciences/Analytical & Diagnostic Instrumentation

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