

## Rapid and Accurate Detection of Microbes using CAT-FISH

**R**esearchers at the University of South Florida have invented a molecular biology based method capable of specifically labeling distinct microbial populations and selectively capturing targeted bacteria using bead based antibodies.

Pathogenic bacteria contribute globally to infectious diseases which cause millions of deaths annually. The urgent need for rapid tests to replace traditional bacteria cultures has led to the development of faster methods. However, many have limitations including high limits of detection and the need for secondary confirmation of target detection. These limitations can lead to failures in target detection due to the absence of true signal and/or presence of high background signals resulting from non-specific interactions.

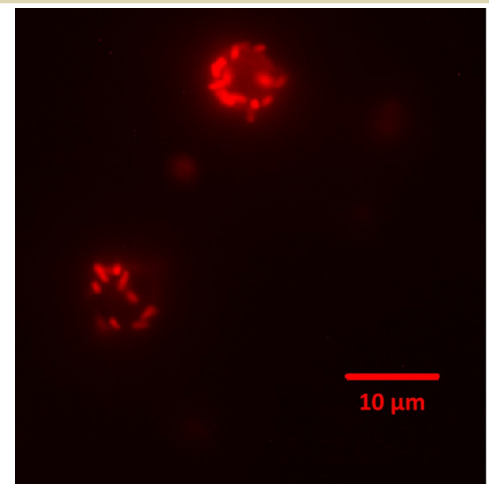
USF researchers developed a method that overcomes these limitations by combining two different techniques using specifically –targeted fluorescently-labeled 16S rRNA gene oligonucleotide probes in conjunction with genus or species specific antibodies. This method has been demonstrated using cytometric bead array technology for detection of dual labeled microbes in a multiplex format, but it is applicable to any antibody-based fluorescence detection platform.

In addition to its dual level target detection and high accuracy, this invention reduces non-specific background noise, and has commercial applications in the diagnostic and research tool industries.

### ADVANTAGES:

- Accommodates various fluorescence requirements
- Allows multiple combinations of probes and antibodies
- Inexpensive and commercially available reagents
- Straight forward kit formation

### *Selective Capture of Targeted Bacteria*



*Fluorescent Image of E. coli O157:H7  
Treated with CAT-FISH*

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