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Detection of Target Metabolites

AzTE Case # M10-183

Inventors

Wayne Frasch
Professor
School of Life Sciences
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Invention Description

Rapid and sensitive detection of nucleic acids and proteins is vital for the identification of pathogenic agents. Biomolecules, such as F_1-ATPase, have been previously shown to provide a single molecule detection system for DNA using a detection signal that is visible by fluorescence microscopy (US 6,989,235).

Prof. Wayne Frasch at Arizona State University has developed a detection device for the identification of targets that employs and further develops the immobilized F_1-ATPase. Target detection is achieved when the metabolite of interest binds to a protein attached to the F_1-ATPase and is subsequently bound by a detection probe which binds only in the presence of the specific metabolite.

The device provides an extremely sensitive technique for target detection and has a wide range of applications including clinical diagnostics, forensic analysis, gene expression analysis, DNA sequencing, DNA proofing, and DNA computing.

Potential Applications

- Nanodetection devices
- Clinical diagnostics
- Forensic analysis
- Gene expression analysis
- DNA sequencing

Benefits and Advantage

- Multiple ligation sites for increased specificity
- Does not rely upon hybridization alone for specificity
- Hybridization can occur in solution, decreasing detection time
- Decreases Error rates from 0.2% down to 0.0001%

Intellectual Property Status:

Patent Pending

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