Detection System for Small Molecules

Tech ID: 25076 / UC Case 2013-097-0

ABSTRACT

Researchers at the University of California, Davis have developed an efficient and easy assay to determine the presence of very small molecule analytes such as pollutants, pesticides, drugs, toxins, and pharmaceuticals.

FULL DESCRIPTION

Due to their simplicity, speed, specificity, and low cost, immunoassays have become useful tools for the analysis of a variety of biological substances and small compounds. While noncompetitive screening methods for analytes, such as ELISAs would be ideal, this is not possible for small analytes. Once an antibody binds the target molecule, there is no longer any available site for the direct binding of a secondary reporter antibody. As a result of this, current methods for screening for small analytes involve a competitive format, where an indirect reporter is utilized to determine the presence of an analyte. These assays typically have a lower sensitivity than immunoassays utilizing a noncompetitive format. Additionally, the competitive assay also leads to a readout which are inversely proportional to the concentration of the analyte, which is counterintuitive and may lead to potential misinterpretations of results.

Researchers at the University of California, Davis have developed a method for high sensitivity detection of small analytes using a noncompetitive assays. With this technology a protein-multipeptide nanomer construct is used for direct detection of the analyte. A major advantage of this new method, in addition to its almost 20 fold heightened sensitivity, is that it allows for the development of a rapid point-of-use tests with an easy to read visual endpoint for very small analytes. This is directly due to the noncompetitive format of the assay. This method is a perfect way to enhance sensitivity and selectivity for any lateral flow assay or ELISA type assay for very small molecules.

APPLICATIONS

- Easy to use analyte detection system for small molecules

FEATURES/BENEFITS

- Increased sensitivity
- Assays with a positive proportional readout
- Easily adaptable into lateral flow tests with an intuitive easier to detect readout

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,101,324	10/16/2018	2013-097

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

CONTACT

Amir J. Kallas
ajkallas@ucdavis.edu
tel: .

INVENTORS

- Hammock, Bruce D.

OTHER INFORMATION

KEYWORDS

Non-competitive immunoassay, phage display, lateral-flow, immunochromatography, immunocomples, small analyte, molecule, detection, diagnostics

CATEGORIZED AS

- **Medical**
  - Research Tools
- **Research Tools**
  - Reagents
  - Screening Assays

RELATED CASES

2013-097-0, 2005-644-0

- Method of Preventing Bone Loss and Periodontal Disease
- Multi-Target Inhibitors for Pain Treatment
- Improved Dioxin Detection and Measurement
- Small Molecule sEH Inhibitors to Treat Alpha-Synuclein Neurodegenerative Disorders
- Soluble Epoxide Hydrolase-Conditioned Stem Cells for Cardiac Cell-Based Therapy
- Targeting Cancer Cachexia with Soluble Epoxide Hydrolase Inhibitors
- Beneficial Effects of Novel Inhibitors of Soluble Epoxide Hydrolase as Adjuvant Treatment for Cardiac Cell-Based Therapy
- Antibodies: Bacillus Delta Endotoxin PAbs
- Antibodies: Bromacil Herbicide PAbs
- Potential Therapeutic Agent for Laminitis in Equines
- Novel Neuropathy Treatment Using Soluble Epoxide Inhibitors
- Novel and Specific Inhibitors of p21
- Antibodies for Pseudomonas (P.) aeruginosa
- Inhibitor for Preventing the Onset of Neurodevelopmental Disorders
- Antibodies: Urea Herbicide Pabs
- Bioavailable Dual sEH/PDE4 Inhibitor for Inflammatory Pain
- Methods of Improving Cancer Immunotherapy
- Chemical Synthesis of Lipid Mediator 22-HDoHE and Structural Analogs
- Antibodies: Triazine Herbicide Pabs
- Optimized Non-Addictive Biologics Targeting Sodium Channels Involved In Pain Signaling
- Soluble Epoxide Hydrolase Inhibitors For The Treatment Of Arrhythmogenic Cardiomyopathy And Related Diseases
- A New Pharmaceutical Therapy Target for Depression and Other Central Nervous System Diseases

University of California, Davis
Technology Transfer Office
1 Shields Avenue, Mrak Hall 4th Floor,
Davis,CA 95616

Tel:
530.754.8649
techtransfer@ucdavis.edu
https://research.ucdavis.edu/technology-transfer/
Fax:
530.754.7620