



TECHNOLOGY

Universal High-Throughput Detection of Protein-Ligand Interactions

OVERVIEW

Background

The knowledge of protein-ligand and protein-metabolite interactions has significant implications in modern drug design and use. Since each of these molecular interactions represents a potential pharmaceutical intervention in disease and agriculture, there is an urgent need to collect qualitative and quantitative functional metabolomic data (involving the detection and quantification of low molecular weight molecules or metabolites). The current methods involved in collecting molecular interaction data are directed at cataloging the presence of various metabolites through mass spectrometric analysis of biological samples, which lack the ability to confirm functional significance. Functional assays for specific protein-ligand interactions, including filter binding assays, isothermal calorimetry, surface plasmon resonance, and many activity assays, are not high-throughput as they are limited by sample processing time, equipment requirements and assay-specific requirements. In essence, there is a critical demand for methods to detect protein-ligand and other such bio-molecular interactions.

Innovative Technology

Inventors at University of Maryland, College Park have developed a novel diagnostic assay that rapidly and precisely detects biochemical interactions between small molecule ligands and their partner proteins. These biochemical interactions are critical in biological function and the development of inhibitors as therapeutics. This novel assay allows both specific and generalized detection of such molecular interactions regardless of the nature of affinity or specificity of the ligand used to target biological targets.

Advantages

- Qualitative and quantitative study of the protein-ligand interactions.
- Combination of swift and precise detection of small molecular interactions.
- Detection without purification or isolation of the small molecules or proteins being studied.

Applications

- New drug discovery of protein/enzyme inhibitors
- Target identification of known drugs
- Diagnostic/Detection kits for any small bio-molecular interaction
- High throughput analysis of bio-molecular interactions using purified proteins or even whole cell lysates

CONTACT INFO

UM Ventures
0134 Lee Building
7809 Regents Drive
College Park, MD 20742
Email: umdtechtransfer@umd.edu
Phone: (301) 405-3947 | Fax: (301) 314-9502

Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Patent(s) pending

LICENSE STATUS

Available for exclusive or non-exclusive license

CATEGORIES

- Research Tools, Antibodies, & Reagents
- Drug Screen
- Platforms

EXTERNAL RESOURCES

LS-2010-086