



TECHNOLOGY

Diagnostic Assay to Study Protein-Nucleic Acid Interactions

OVERVIEW

Background

Protein-nucleic acid interactions including protein-DNA and protein-RNA interactions are crucial to the protection and usage of the genome. There are many methods currently being used to identify and analyze these interactions including filter binding assays, electrophoretic mobility shift assays (EMSA), Chromatin Immunoprecipitation techniques (ChIP-Chip), Isothermal Titration Calorimetry (ITC), and Surface Plasmon Resonance (SPR). Each technique has its advantages and disadvantages. There is no universal method that is quick, precise and inexpensive (without the need for specialized equipment) to measure of affinity between these small molecules. Therefore, there exists a need for a high-throughput, quick and accurate technique to study protein-nucleic acid interactions.

Innovative Technology

Researchers at the University of Maryland, College Park have developed a novel assay to study protein-nucleic acid interactions (Protein-DNA, Protein-RNA). This technique is a rapid, precise, quantitative and universal method for measuring these molecular interactions. This invention will allow the development of diagnostics and specific assays for screening small molecule inhibitors to specifically disrupt protein-DNA and protein-RNA interactions.

Advantages

- 1) This technique combines simplicity and precision with speed.
- 2) It is closer to an equilibrium technique and allows measurement of affinity kinetics.
- 3) Extremely small sample quantity required and allows easy generation of large number of different probes
- 4) Universal method for studying protein-ligand/nucleic acid interactions using fluorescent instead of radioactive labeling.

Applications

- 1) New drug discovery involving protein nucleic acid interactions
- 2) Portable diagnostic/detection kit to study any small bimolecular interaction
- 3) High-throughput quantitative and qualitative screening of small molecular interactions involving proteins and nucleic acids

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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
- Platforms
- Drug Screen

EXTERNAL RESOURCES

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