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Protein-Protein Interaction Detection System (PPIDS): The solution for efficient drug design

ID: 04711

Innovators: Despoina Aslanoglou, Zachary Freyberg

The drug development process is extremely costly and slow, with millions of dollars spent and years until a target is validated and a drug released in the market. This is due to the lack of highly selective and truly high-throughput screening assays. The methods that are widely used involve detection of intracellular protein interactions that are key targets for drug design. These targets do not operate alone, but form interactions that are the key to creating effective drugs. Such targets include dopamine receptors and their interacting intracellular components, involved in development of therapeutics ranging from drug addiction to diabetes. These pathological conditions are a burden for health care systems around the world and effective treatments will save and improve millions of lives, as well as provide a multi-million increase in the drug discovery market. Current approaches used to study intracellular interactions lack specificity leading to costly, noisy and poor results. Our new method, Protein-Protein Interaction Detection System (PPIDS) can offer cost-effective and rapid drug screening as well as reliable target validation for any intracellular protein interacting pair in live cells, for the first time. Thus, PPIDS can provide a significant shortcut to the long and costly road of target validation and boost the development of blockbuster therapies.

Technology Description

PPIDS is based on the use of fluorescence energy transfer between two cell-permeable, fluorescent species (donor and acceptor). The key components of PPIDS include:

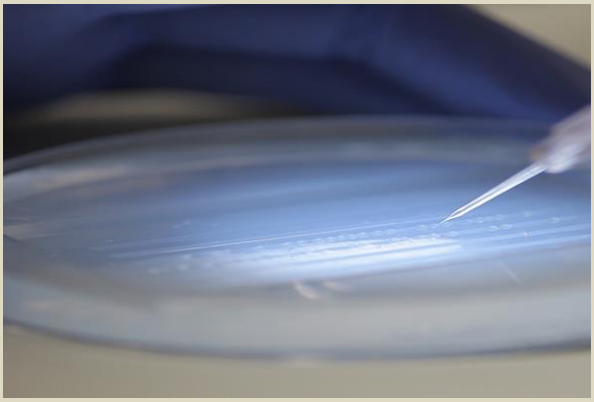
1. Small epitope tags genetically fused intracellularly to the interacting proteins of interest allowing for rapid and highly specific detection. The donor/acceptor pair of ultra-bright fluorophores allow for the detection of a strong and specific signal, corresponding to the protein-protein interaction of interest in a single step process.
2. Our choice of cell permeable lanthanides as energy donors is unique and provides noise-free results for the first time.

Advantages

- Cell-permeable, ultra-bright fluorophores to detect weak and transient intracellular interactions
- Highly specific and selective targeting
- Elimination of background noise
- Reliable results.

Applications

- Novel drug design for drug addiction and diabetes
- Great impact in metabolic and neuropsychiatric therapeutics
- Speed up drug high-throughput screening process
- Reliable, cost effective and quick target validation



Stage of Development

The fluorescent components for PPIDS are currently under advanced development.

IP Status

In process.

Notable Mentions

Acknowledgements to Dr. Alex Deiters and Mr. Anirban Bardhan from the Department of Chemistry, University of Pittsburgh for conducting the synthesis of the PPIDS components.

University of Pittsburgh
Innovation Institute
200 Gardner Steel Conference Center
Thackeray & O'Hara Streets
Pittsburgh, PA 15260

Abhishek Sangal MS, MBA, CLP
Technology Licensing Manager
412-383-4316
asangal@innovation.pitt.edu