Software for Quantification of Ligand-Driven Oligomerization

OTT ID # 1633

Applications

- Screening of drug candidates targeting protein-protein interactions
- Live-cell imaging

Software Requirements

This is a Fluorescence Intensity Fluctuation (FIF) Spectrometry Software based on MATLAB code that can be run on 64 bit windows operating systems and requires a minimum of 500MB disk space.

Target Problems

Determining the size of the oligomers or the timing of the oligomerization onset pose substantial experimental challenges, with different studies often producing contradicting results. Existing technologies either are laborious and slow or lack the bandwidth needed to discriminate between different oligomeric sizes and expression levels (i.e., concentrations).

Key Features

- **High Throughput –** Can produce and analyze a complete set of data (for one receptor) in one day or less.
- **High Selectivity and Sensitivity –** Capable of determining identity, abundance, and stability of oligomers.
- **Wide Applications-** Can be used to quantify any protein that can be fluorescently tagged.

Technology

A molecular brightness-based determination algorithm is incorporated into a user-friendly computer program suite for extracting oligomer size and concentration from images of fluorescently tagged membrane proteins. This method, termed two-dimensional fluorescence intensity fluctuation (FIF) spectrometry, which can generate 'spectrograms' consisting of frequencies of occurrence of brightness-concentration pairs of values across pixels of fluorescence images of cells expressing molecules labeled with single fluorescent tags, and unmixes the spectrograms to determine the proportion of different oligomer sizes. The computer program suite is capable of producing a complete set of data per type of sample in less than one day using a standard personal computer.

Intellectual Property

Copyrighted software available for no charge for first 15 days and with onetime fee for commercial and non-commercial use.

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