Abstract

Imaging technologies have made a significant improvement in the past few decades and their application made a great impact on accelerating the process of drug discovery and development. The ability to non-invasively image an animal model or co-cultured live cells and validate potential drug target, biomarkers of drug efficacy and assess a pharmacological drug interaction significantly contributes to the process of translating molecules into medicines. This paper summarizes current trends in bio-imaging technologies and their application on the process of drug discovery. In particular, High Content Screening (HCS) and Virtual Screening (VS) are reviewed, and their respective examples are discussed to gain insight into state-of-the-art bio-imaging methodologies used for extracting knowledge and its application to drug discovery. This paper argues the need to reduce the gap between experimental (e.g. HCS based assays) and theoretical (e.g. VS based assays) assays. Although HCS and VS are
leading drug discovery choices for the pharmaceutical industry and such investigations have been carried out in their respective campaign, the potential effects of these approaches together to facilitate the process of drug discovery has rarely been reported. Further, the prevalent research trends on developing hybrid approaches such as VS complementing HCS implies substantial enhancement to the goal of reliable drug candidate identification.

References


41. Markus Rudin and Ralph Weissleder. Molecular imaging in drug discovery and


Index Terms

Computer Science

Image Processing
Keywords

Bio-imaging, drug discovery, high-content screening, virtual screening