

## Novel Drug Designing and Developing Interventions by using Pharmaceutical Technologies

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### INTRODUCTION

The drug design focuses on all fields of including drug discovery, drug design by rational approach, target-based design, drug synthesis, drug metabolism, structure-based drug design, molecular modeling, ligand-based interaction, development of the generic drug, in silico chemo informatics and bioinformatics technologies.

Design for reliability in drug development, Design for traditional Chinese medicine clinical trials, Bayesian sequential design for multi-regional design, Design and analysis for target clinical trials, Design and analysis for diagnostic procedures, Adaptive design for early clinical development, Design for biosimilar studies, Design for bioassay development and validation, Design for statistical genetics, Design for assessment of drug to drug interaction, Design for bridging studies, Design for stability analysis, etc.

From the fore-going, it is evident that laboratory-based clinical investigations remain pivotal in the successful hunting of any therapeutic intervention. However, these investigations are found to be resource-consuming, expensive and time-wasting. Since serendipity has eluded discovery and designing of therapies, clinical approaches are irrational, and computing knowledge as well as application of artificial intelligence have escalated, computer-assisted approaches and robotic devices have therefore crept into the processes of discovery, design and development of therapeutic interventions. The entire processes of hunting for therapies had transited into Computer-Aided Drug Design [1-3].

This approach to innovating therapies spans from the computer-assisted designing of drug molecules (Molecular Modeling) and Structure-based Modifications to the Absorption, Distribution, Metabolism and Excretion (ADME) assessment and, the large-scale determination of the drug side effects that recently benefitted from the rationality of computation [4-7].

Other therapeutic interventions that would not have come out of serendipity are the trans-Atlantic surgery and the machine-managed insulin delivery device for the diabetics [8-9].

As a result of these activities, there is currently, a large deposit of information needed for the discovery, design and development of therapeutic interventions. It has become too challenging to manage this information and therefore, an approach which would help retrieve, organize, analyze these huge data in order to extract, extrapolate, correlate, juxtapose, reconcile and predict outcomes is required. This has brought in Bioinformatics approaches into the invention of therapeutic interventions, which is the only technique that can perform these functions [10].

Bioinformatics tools and programs are bound for these purposes. These devices encompass apparatuses for the search for drug molecules, designing and determination of their potency, resistance and unwarranted effects. The devices involved in the search include High-Throughput Screening (HTS). Designing involves two approaches. They are Molecular Modeling, which includes Docking and Structure-based optimization, where analysis such as Multiple Sequence Alignment and Digital Signal Processing-based on are undertaken. Drug resistance algorithms such as Genotype, Phenotype and a combination of both including Virtual Phenotype are Bioinformatics-based [11-13].

This journal tends to explore the novel drug designing and developing interventions by using Pharmaceutical technologies.

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Received date: July 5, 2020; Accepted date: July 20, 2020; Published date: July 27, 2020

Citation: Ane W (2020) Novel Drug Designing and Developing Interventions by using Pharmaceutical Technologies. Drug Des. 9:e162.

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