



Artificial Intelligence Solutions for Drug discovery, development, repurposing and personalized medicines.

Innovations in Artificial Intelligence (AI), Biology and automation are enabling new approaches for drug discovery, development and repurposing. Xen.AI is at the forefront of these innovative solutions.

Industry

LifeSciences, BioTech, Pharmaceutical, Healthcare, Medical, Academic & Research Institutes.

Business Needs

Companies are looking for innovations in AI, Biology and automation to enable new approaches for drug discovery, development, repurposing and personalized medicines to improve the operational efficiency.

Solutions

Xen DrugDiscovery360.AI solution comprises three main AI-driven tools:

XenChem:

- Early-stage drug discovery

XenGenome:

- automated scRNA-seq Data clustering and annotation pipeline
- Variant calling pipeline
- Phenotype/genotype interaction from Real-World Evidence Data

XenPharma:

- AI-driven in silico virtual clinical trial pipeline.

The Challenge

The standard process approach for drug discovery requires scientists to comb through extremely large amounts of data to identify the right chemical compounds that can be tested for a targeted disease. Typically, cells representing a specific disease are exposed to a variety of compounds, and a microscopy snapshot is taken of each reaction that follows, running into millions.

The Solution

Xen DrugDiscovery360.AI solution is aimed at addressing the aforementioned challenges of the industry and enables us to efficiently find drug candidates with desirable properties. Our in-house-built Knowledge Graph-Based (KGB) database system ingest and integrate complex networks of biological and past drug discovery research data, such as physicochemical properties, pharmacokinetics, and safety of compounds, to discover and interpret potential targets and drug candidates. We are focusing on the research and development of immuno-oncology and other gene-based therapeutics.

Benefits

Xen DrugDiscovery360.AI solution can help in the following areas:

- Early-stage drug discovery (screening & pre-clinical data analysis)
- Analysis, clustering, and annotation of scRNA-seq Data for biomarkers identification
- Variant calling of whole and exome genome sequence data
- Multi-omics data integration
- Design and analyze clinical trials virtually
- Design, evaluate and recommend personalized medication options
- Evaluate the success of success (POS) of clinical trials

At Xen.AI, we believe, AI is a need and different clients can have a different level of AI needs. Thus, under the hood, Xen DrugDiscovery360.AI comprises three main AI-driven tools, which are consistent with the different stages of the drug development process and our solutions are customizable depending on clients' AI needs.

1. **XenChem** integrates Deep Learning (DL), computational chemistry and big data coming from previous studies for molecular design of potential drug-like candidate chemical compounds.
2. **XenGenome** is a multi-omics platform, which harnesses publicly available next-generation sequencing (NGS) gene expression data and facilitates immuno-oncology research through the quantitative evaluation of disease biomarkers all the way down to the level of DNA, RNA and the molecular machinery of the cell.
3. **XenPharma** is a virtual clinical platform that enables us to evaluate the success of different clinical trials in silico. The platform facilitates a streamlined workflow for planning large, complex clinical trials, which enables researchers to test different therapeutics/hypothesis virtually before going for actual animal and human tests. Using XenPharma researchers can generate scientific and statistical variables that enable the quantitative determination of efficacy and safety, as well as the probability of success (POS) of clinical trials.

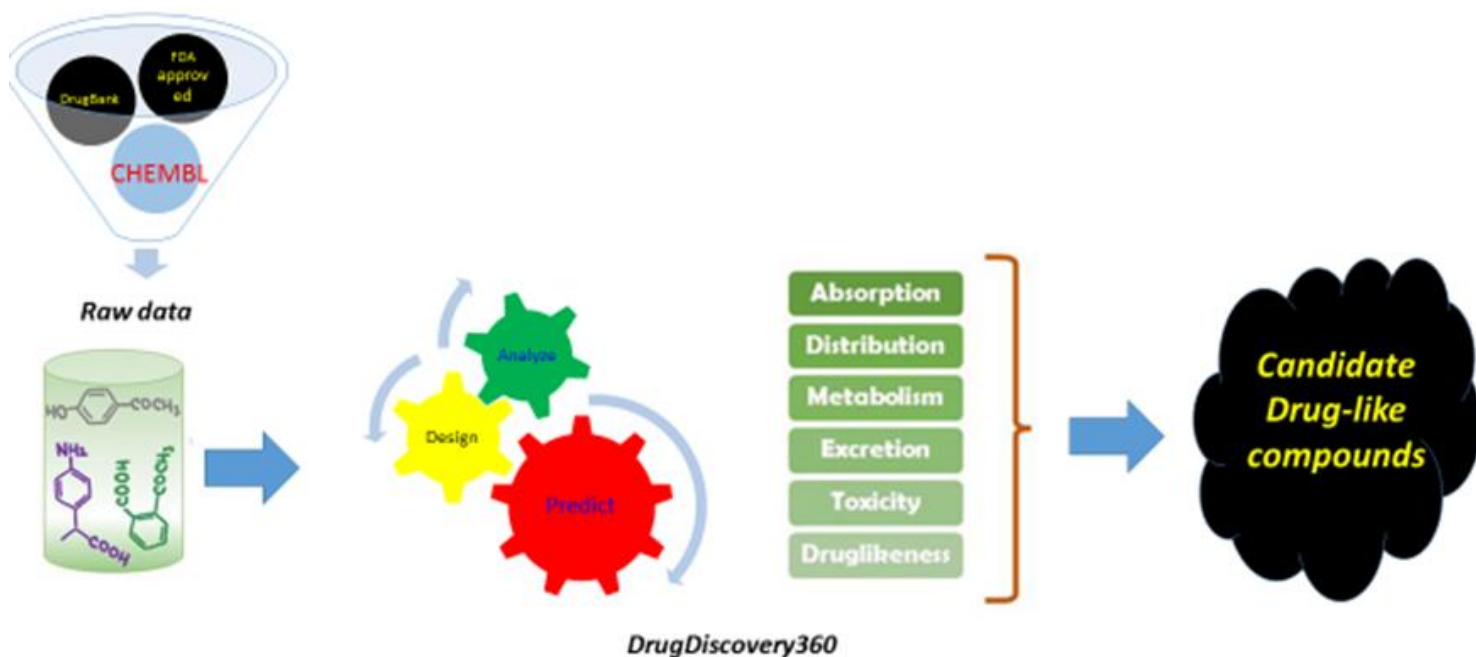


Image 1 - XenChem

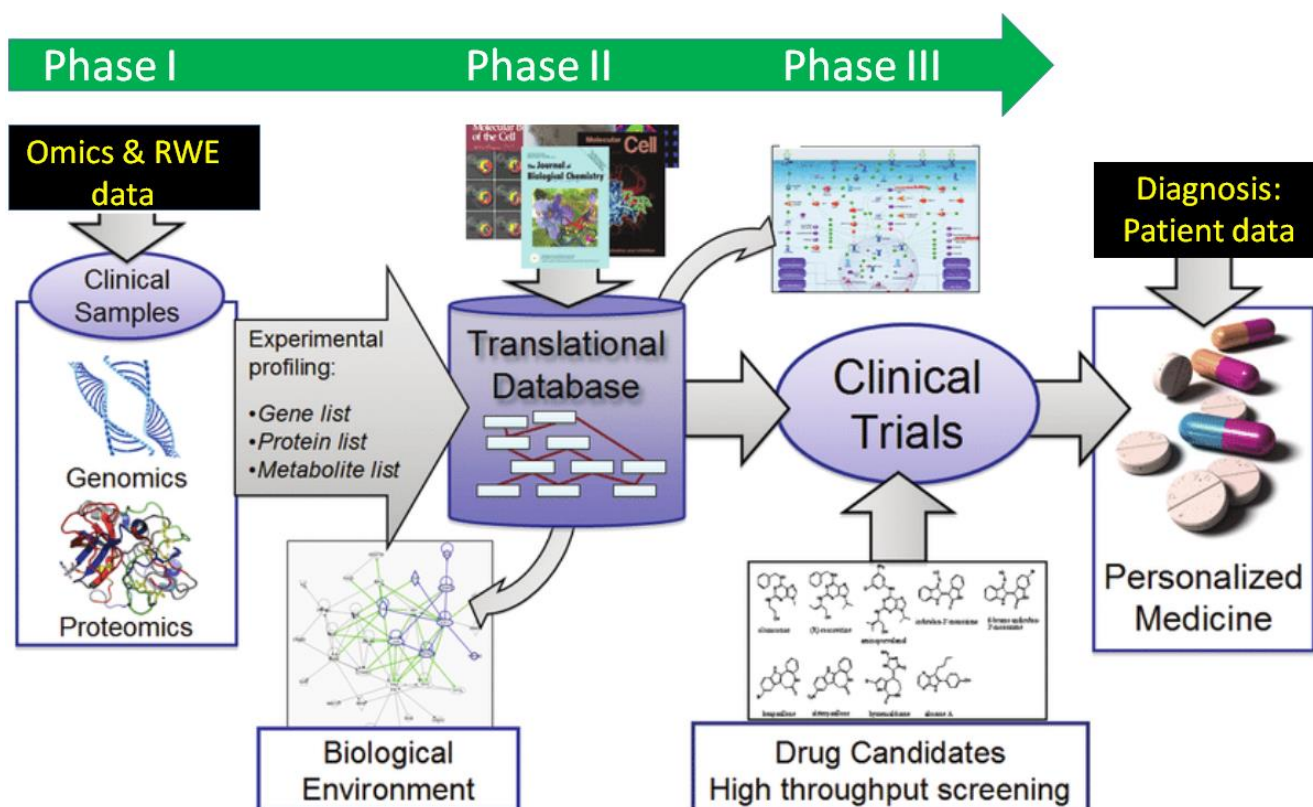


Image 2 - XenGenome and XenPharma solution pipeline

Applications and Benefits

Xen DrugDiscovery360.AI solution can help researchers, scientists and research institute to reduce manual-based data analysis, improve the scalability of the big data ingestion and integration at different stages of drug-discovery processes and clinical trials with high accuracy and able to avoid uncertainties in the following areas:

- Early-stage drug discovery (screening & pre-clinical data analysis)
- Analysis, clustering and annotation of scRNA-seq Data for biomarkers identification
- Variant calling of whole and exome genome sequence data
- Multi-omics data integration
- Design and analyze clinical trials virtually
- Design, evaluate and recommend personalized medication options
- Evaluate the success of success (POS) of clinical trials.

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