

Drug Repurposing

I Product Description

Drug repurposing, also known as the new use of old drugs, is a strategic approach to discover new applications for old or investigational drugs beyond their original approved applications. While the development of new drugs is a process with a high failure rate, high cost, and slow pace, repositioning old drugs for common and rare diseases is becoming increasingly attractive because of the advantages of low R&D costs and short development time.

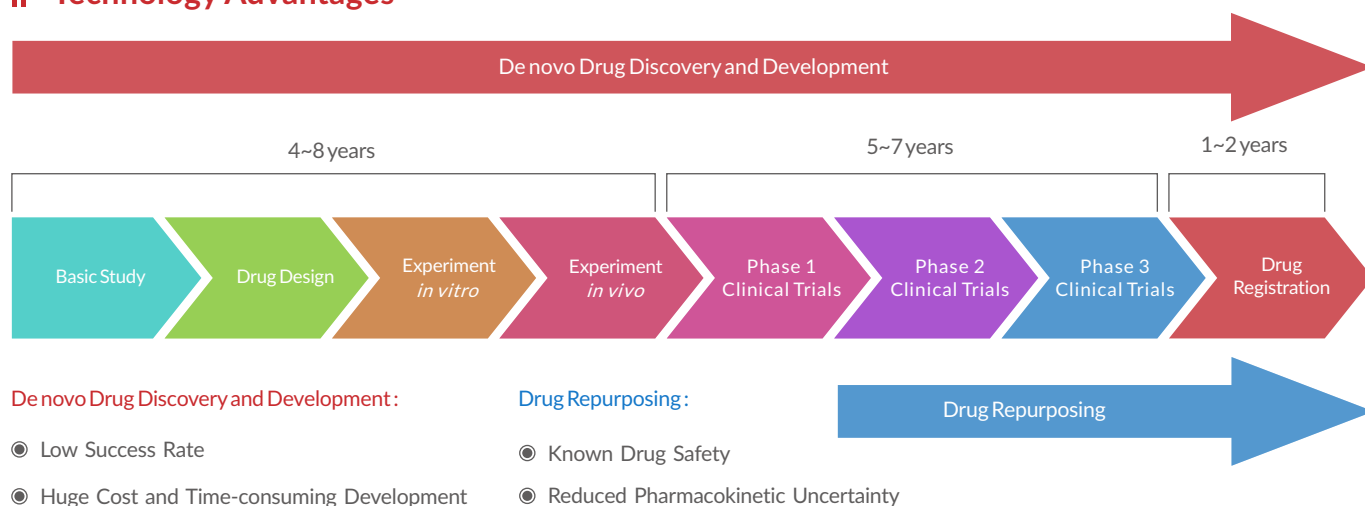


[1] For example, disulfiram (DSF), an FDA-approved antialcoholic drug for more than 60 years, has the advantages of low cost and low toxicity. Recent studies have shown that it has obvious antitumor effects, including the inhibition of tumor stem cells, proteasome, tumor angiogenesis; the induction of inducing tumor cell apoptosis, cell cycle arrest; the increase of radiotherapy sensitivity, and reversion of tumor cell drug resistance. At present, disulfiram for the treatment of non-small cell lung cancer and pancreatic cancer has entered the clinical stage.

[2] Another example Metformin DMBG is mainly used in the treatment of type II diabetes, but in recent years it seems to be increasingly considered as a "magic drug". Apart from its hypoglycemic effect, it has shown the effectiveness of treating cardiovascular diseases as well as presenting antitumor, anti-infective, anti-inflammatory and anti-aging properties.

[3] When novel coronavirus (COVID-19) is prevalent all over the world, "Drug Repurposing" becomes one of the main strategies of new drug discovery. If we could find effective drugs for COVID-19 infection from existing drugs, the drug development process will be greatly accelerated since we can directly enter clinical trials by skipping pharmacological search, animal experiments etc. A variety of existing drugs such as Chloroquine, Favipiravir and Remdesivir have been found to have anti-COVID-19 effectiveness. Researchers have high hopes for these drugs, and are testing them in clinical trials currently.

II Technology Advantages



Compared with the whole process of new drugs discovery, Drug Repurposing has many advantages.

First and most importantly, the risk of failure is relatively low. If the drug has completed early-stage trials, proven to be safe in clinical models and human bodies, then at least from a safety standpoint, it is at low risk of failure in subsequent efficacy trials.

Secondly, Drugs Repurposing can shorten the time of drug discovery and development. It often takes 13-15 years to launch a new drug into the market. Drugs Repurposing can shorten the R&D process to half because most preclinical tests, safety evaluations, and sometimes even pharmaceutical formulations have been completed.

Thirdly, a lower investment is required. Although new developmental stages in Drug Repurposing will lead to a difference in cost, it can save a lot of money in preclinical, clinical phase I, and clinical phase II. With these advantages, Drugs Repurposing can reduce the risk of new drug discovery and achieve a faster investment return. Even if the research fails to go through, the average cost will still be reduced. In fact, the cost of a single Drug Repurposing is estimated to be 300 million USD, while it will cost as much as 2 to 3 billion USD to discover and develop an entirely new chemical drug.

Finally, Drug Repurposing is beneficial to researchers generally since it can find out drugs that worth further studies and investigations.

III What can TargetMol® Provide?

As a professional supplier specializing in drug screening, TargetMol® Chemicals provides various drug repurposing compound libraries including Bioactive Libraries, Drug Repurposing Compound Library, Approved Drug Library, FDA-Approved Drug Library, Clinical Compound Library and so on. Having large quantities and detailed information, these compound libraries are effective tools for drug repurposing and new drug targeting to make your drug screening successful.

ID	Product	Features
L4000	Bioactive Compound Library	Clear targets with comprehensive information. Especially suitable for drug repurposing, induction of cell differentiation by small molecules, or confirmation of protein targets in mechanism research.
L9200	Drug Repurposing Compound Library	Drugs in the clinical phase or are launched to the market. The biological activity and safety of the drugs have been verified, so the library can shorten the R&D cycle, save costs and greatly improve the success rate of new drug research and development.
L1010	FDA-Approved & Pharmacopeia Drug Library	Drug molecules approved by FDA or found in Pharmacopoeias from all countries. The biological activity and safety of molecules have been approved. It can be used for drugs repurposing and cell induction.
L1000	Approved Drug Library	Drug molecules approved from all countries. The biological activity and safety of molecules have been approved. It can be used for drugs repurposing and cell induction.
L4200	FDA-Approved Drug Library	Compounds approved by the FDA and each has an FDA approval number. With highly biological activity, clear target information, better safety and bioavailability, the FDA-Approved Drug Library is an effective tool for drug repurposing and new drug target screening.
L3400	Clinical Compound Library	Compounds approved to enter the clinical phase. With clear clinical-stage information, the drugs can speed up the new drug discovery process, and improve the success rate of screening.