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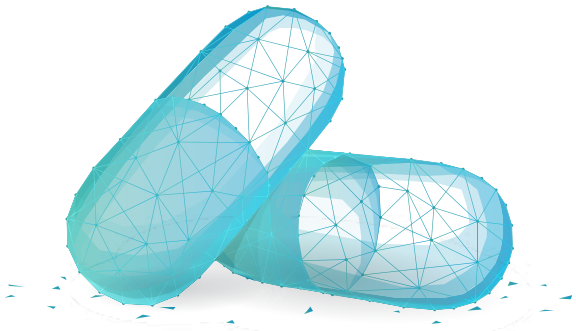


Drug Repurposing Services

Drug Repurposing or Repositioning (DR) is a strategy in drug development that aims at identifying new therapeutic opportunities for existing drugs. Repurposing has proven to be an effective and efficient strategy for Pharma and Biotech companies looking to augment their portfolio of approved, as well as investigational drugs. DR significantly reduces the time and costs required to bring a drug to the market, especially when compared to the high investment and risk-prone nature of traditional de novo drug discovery.

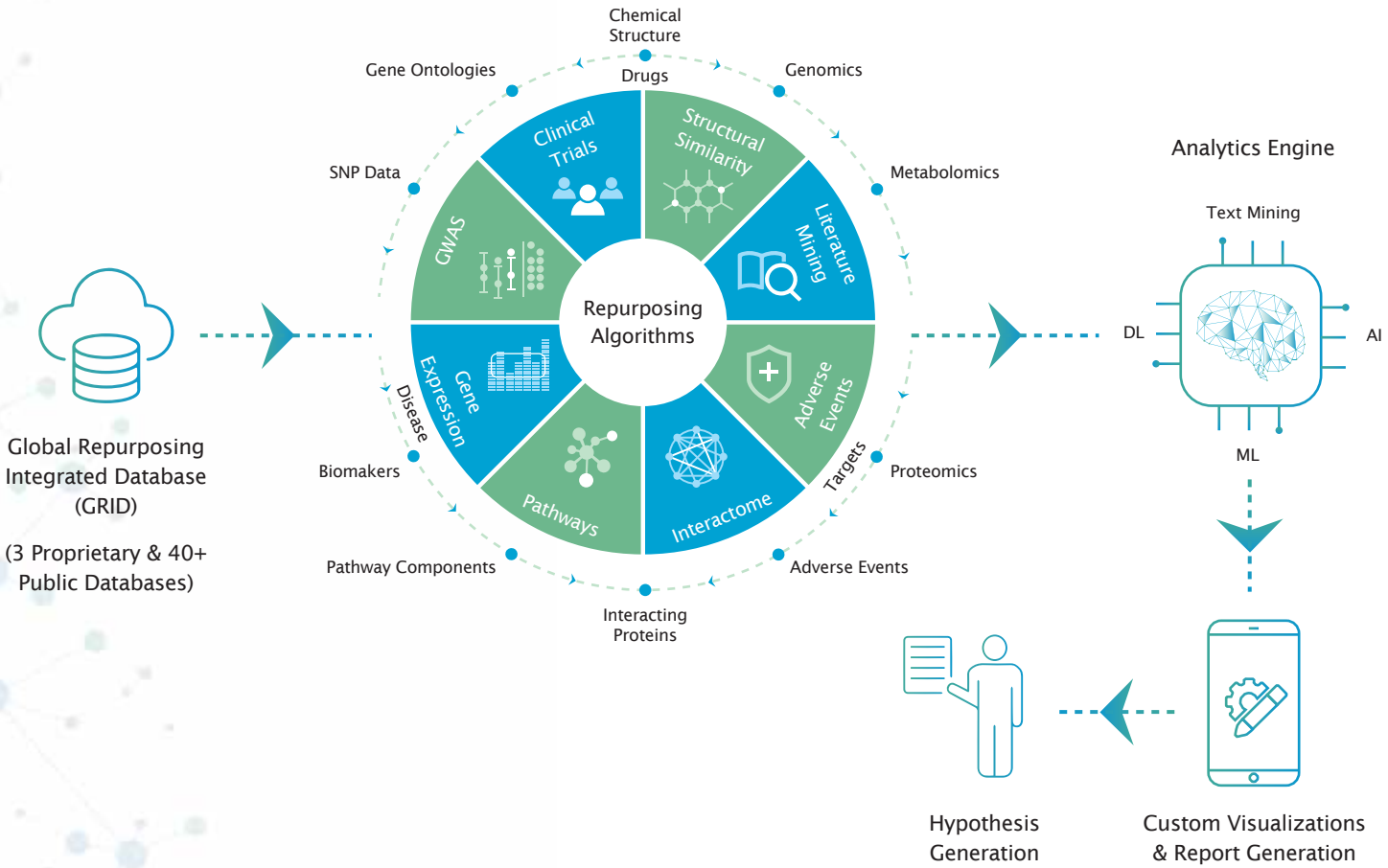
Drug Repurposing at Excelra

Excelra works at the cutting-edge of in silico drug repurposing; applying Computational Biology, Computational Chemistry, Machine Learning (ML) and Deep Learning-based Solutions, driven through our proprietary **Global Repurposing Integrated Platform (GRIP)**.

GRIP comprises

- 40+ public databases
- 8 repurposing algorithms to unveil novel drug-disease-target associations
- Visualization tools
- Advanced analytics engine (AI-ML, NLP and Text-Mining tools)
- Excelra's proprietary chemical, biological and clinical databases (GOSTAR, GOBIOM & CTOD)

The output from GRIP is analysed by subject-matter experts to build robust scientific hypotheses establishing the potential therapeutic role of a given drug(s) in an alternate indication.

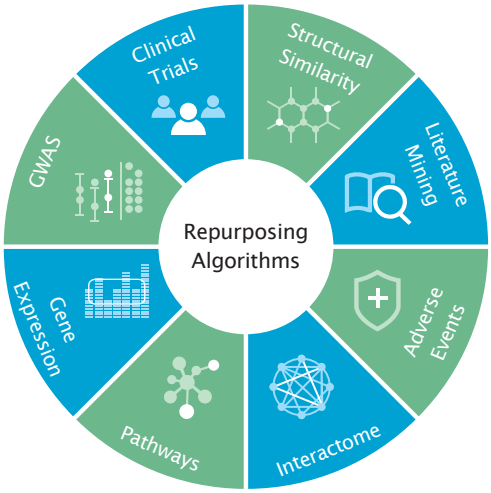


Our In silico Drug Repurposing Workflow

1. **Input:**
   Compound target pair

2. **GRIP**

3. **Identifying, Filtering & Short-listing Drug-Disease Associations**



4. **Frequency table with alternative indications**

Mesh Tree	Mesh Term	Interactome	Pathways	...	Total	Status
Liver Disease (Tier III Indication)	Non-alcoholic steatohepatitis	✓	✓		X	Clinical
Neoplasms (Tier II Indication)	Pancreatic neoplasms	✓	✓		Y	Clinical
Nervous System Disease (Tier III Indication)	Multiple sclerosis	✓			Z	Clinical

5. **Bining & Profiling**

6. **Final Short-listed Indications**
   - Indications with strong biological evidence
   - Focus on partner's therapeutic interest

Our Drug Repurposing Solutions

Drug-centric Repurposing	**Output:** A detailed report outlining final recommendations for alternative indications and potential role of the drug(s), supported by analytical process, biological hypothesis and scientific evidence.
Disease-centric Repurposing	
Target-centric Repurposing	
Therapeutic-centric Repurposing	
Large Molecule-based Repurposing	
High Throughput Indication Scan	
Human Drugs for Animal Health (Veterinary DR)	
Reformulation & Drug Combination Strategies	
Drug Lifecycle Management Strategies	

The Excelra Edge

Our Drug Repurposing Solutions synergistically combine flexible and scalable analytical pipelines, with manual data-driven analysis conducted by our in-house subject matter experts. The drug is holistically analysed from a chemical, biological and clinical perspective to uncover novel insights.

The engagement with our clients is customized and collaborative, and is based on their bespoke needs.

Advantages we bring:

Our Experience & Success Stories

Excelra has successfully delivered 100+ projects till date in rescuing as well as creating extra value out of existing assets for its global Pharma and Biotech partners.

8+
years of experience in **small molecules and biologics**

9
recommendations validated in pre-clinical phase

12
recommendations currently in **pre-clinical evaluation** with promising outcomes

3
recommendations advanced to **IND enabling & Clinical stages of development**

Our Clients

- Innovator Pharma and Biotech companies
- Generic Pharma and Biotech companies
- Veterinary Pharma and Biotech companies

You may also be interested in our allied service offerings:

- Target Identification, Prioritization and Dossier Services
- AI-based Indication Prioritization and Drug Combination Prediction
- Biomarker Discovery and Patient Stratification
- Biology Data Curation and Structuring

Download our Drug Repurposing Case-Study

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About Excelra

Excelra's data and analytics solutions empower innovation in life sciences across the value chain from discovery to market. The Excelra Edge comes from a seamless amalgamation of proprietary curated data assets, deep domain expertise and data science. The company's multifaceted teams harmonize and analyze large volumes of disparate unstructured data using cutting-edge technologies. We galvanize data-driven decisions to unlock operational efficiencies to accelerate drug discovery and development. Over the past 18 years, Excelra has been the preferred data and analytics partner to over 90 global clients including 15 of the top 20 large Pharma companies.

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