A GOBIOM Case Study

MicroRNAs as Biomarkers for Drug Resistance and Response to Therapy in Cancers

The Purpose

- To predict and analyze miRNAs indicative of treatment response and drug resistance in various cancers through heat-map analytics.
- To identify the decisive miRNAs and position them as potential therapeutic targets in the area of oncology.

About the Client

- **Company**: Biotech
- **Location**: Europe
- **Therapeutic Area**: Oncology

Client Specification

To identify miRNAs associated with the sensitivity of two cancers against an IND.

The Excelra Approach

- To expedite, heat-map analytics was chosen in GOBIOM.
- Heat-map analytics was used to draw forth the list of potential miRNAs indicative of response to the therapy and drug resistance by plotting miRNAs against various oncology related indications.
- The list of drugs showing disease resistance was obtained by plotting drugs against various miRNAs across different indications.

<table>
<thead>
<tr>
<th>miRNAs indicative of drug resistance across various oncology indications</th>
<th>miRNAs indicative of drug response across various oncology indications</th>
</tr>
</thead>
</table>

| miRNAs indicative of drug resistance across various drugs in oncology therapeutics | |
Excelra’s Contribution

- Predicted miRNAs to categorize cancers into drug-sensitive and/or resistant buckets.
- Further ranked cancers as per their drug sensitivity scores.
- Few relevant genes and their expression pattern were also identified.
- The miRNAs associated with the sensitivity of an IND may be used as a biomarker to predict a response.
- Targets and major functions impacted by the miRNAs could be identified.

Excelra’s Service Portfolio

- **Insights**
  - Discovery
    - Data Science Driven Drug Discovery
    - Target Identification
    - Target Dossier Services
  - Translational
    - Biomarker Discovery
    - Drug Repositioning
    - Life Cycle Management
    - Systems Biology Informatics
  - Clinical
    - Precision Oncology Informatics
    - Clinical Pharmacology
  - Value Evidence
    - Outcomes Research
    - Epidemiology Modelling
    - Economic Modelling
    - Value Evidence Communication
  - Technology
    - Enterprise Data Strategy
    - Enterprise Cloud Ops
    - Enterprise Digital Transformation

- **Data**
  - Discovery
    - Chemistry Curation Services
    - GOSTAR Structure Activity Relationship database
  - Translational
    - Biology Curation Services
    - GOBIOM Biomarker intelligence database
  - Clinical
    - Clinical Trial Outcomes Database
  - Value Evidence
    - RWE & Big Data Realization
    - SLR & Meta-analysis

For more information, visit [https://www.excelra.com/translational/#gobiom](https://www.excelra.com/translational/#gobiom)