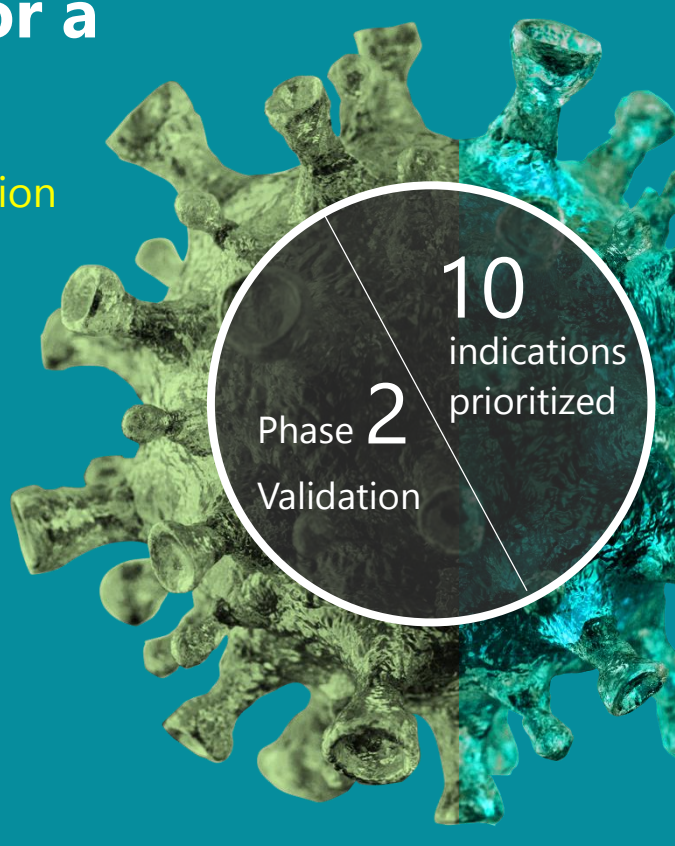
CASE STUDY

excelra

Portfolio augmentation for a potential biologic drug

Machine learning driven indication prioritization



Objective

A public biotech company that successfully pioneered a novel drug delivery system to target liquid tumors, was interested in expanding the potential of their technology to solid tumor indications.

Methodology

2 months

3 FTE

Public domain patient drug response data

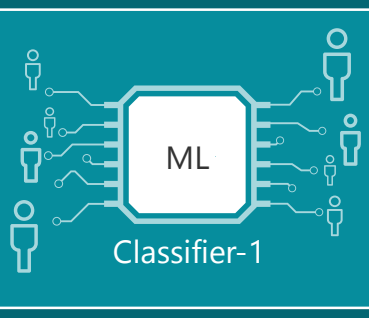
Disease-gene expression datasets

Disease sub-type specific datasets

Cancer patient data from client *(known drug response)*

Sensitive patient

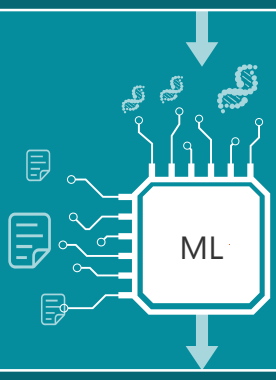
Resistant patient



Classifier-1

Perturbed genes in sensitive patient

Literature genes from other indications



Classifier-2

Predicted gene signature

Multiple Corroborative ML Classifiers

Prioritized Indications for given drug

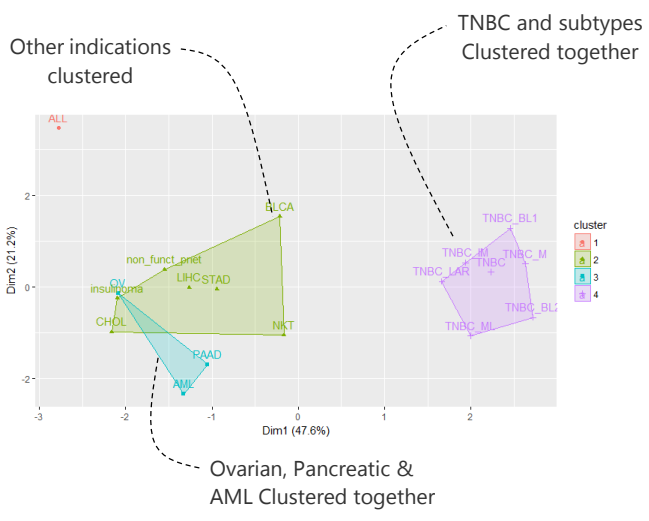
ALL
Liver cancer
Pancreatic cancer
Ovarian cancer
AML
Drug Responders

Bladder Cancer
Cholangiocarcinoma
Stomach Cancer
TNBC_BL1
Potential Responders

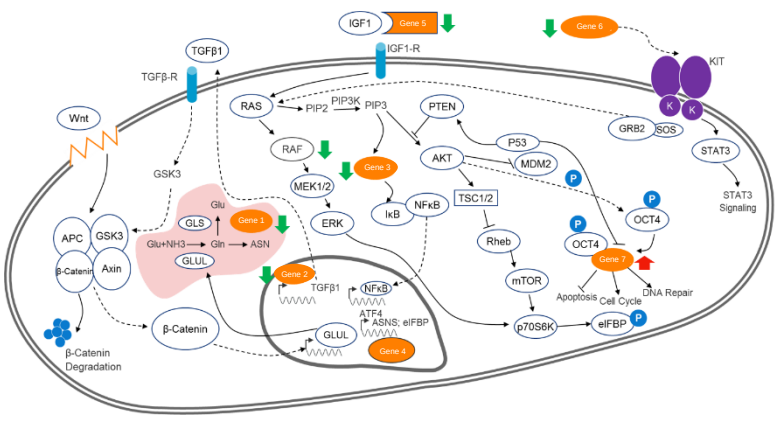
TNBC
Non-Responders

Disease sub-type clustering

Gene centric pathway elucidation



Disease sub-type clustering



Gene centric pathway elucidation

Outcome

- Excelra facilitated portfolio optimization and expansion for the partner, by prioritizing 10 oncology indications, a mix of solid & liquid tumors types.
- ALL (Acute Lymphoblastic Leukemia) determined as a top-priority indication by Excelra, was further confirmed by the client, that successfully validated our approaches.
- Prediction of drug-response at a cancer sub-type level.
- Determined causal gene signatures and provided a comprehensive biological rationale and pathway analysis.

Value

- Portfolio enhanced for next 2 years
- Increased application of partner's technology platform & external validation
- Created value for shareholders and the Board to fund future programs
- Potential revenue generation >$2Bil*

Leverage Excelra's experience in building computational pipelines and developing proprietary predictive algorithms. We facilitate a unique collaboration between bioinformaticians and biologists who help in assigning a biological rationale and testable hypothesis.

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