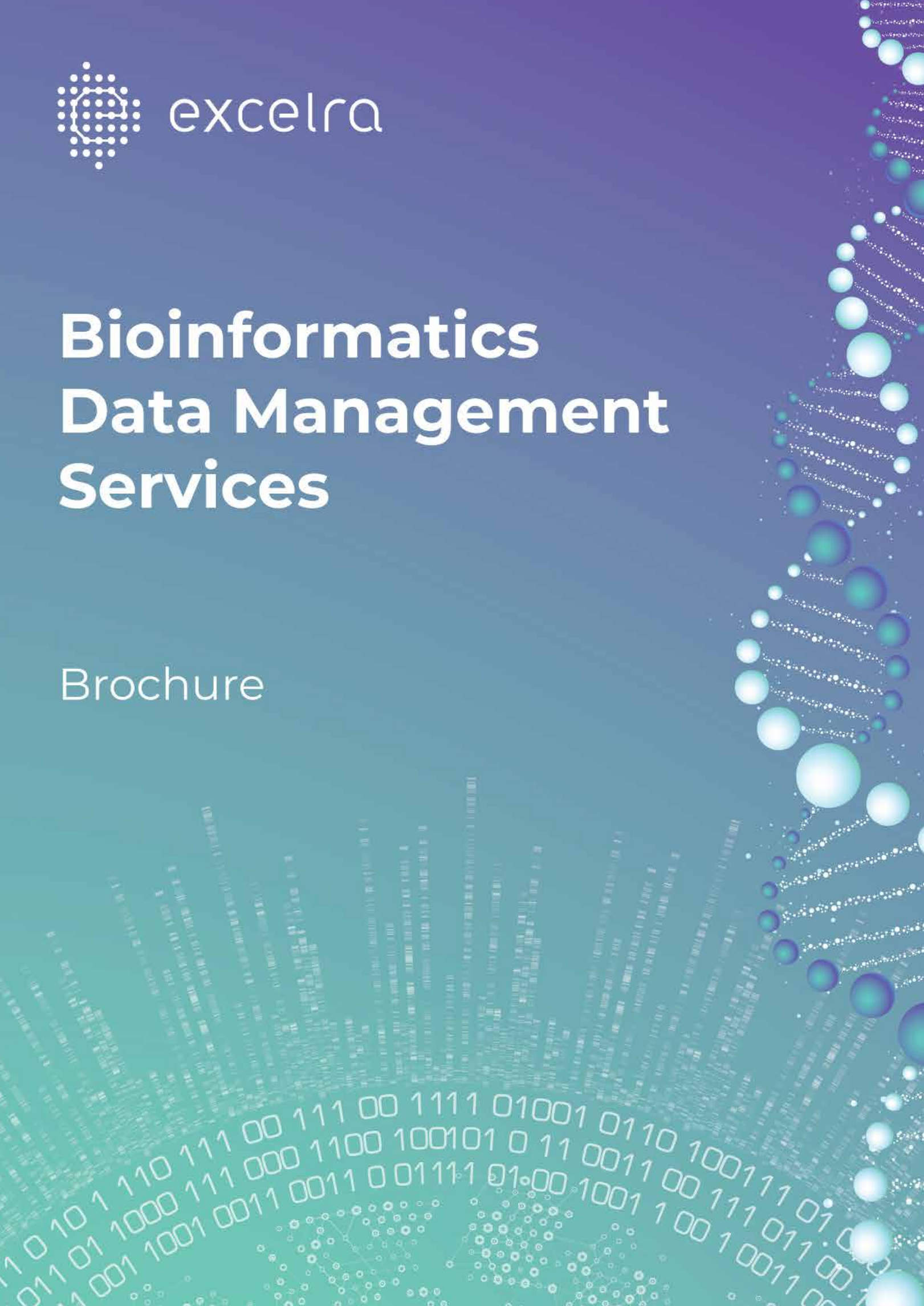
excelra

Bioinformatics Data Management Services

Brochure

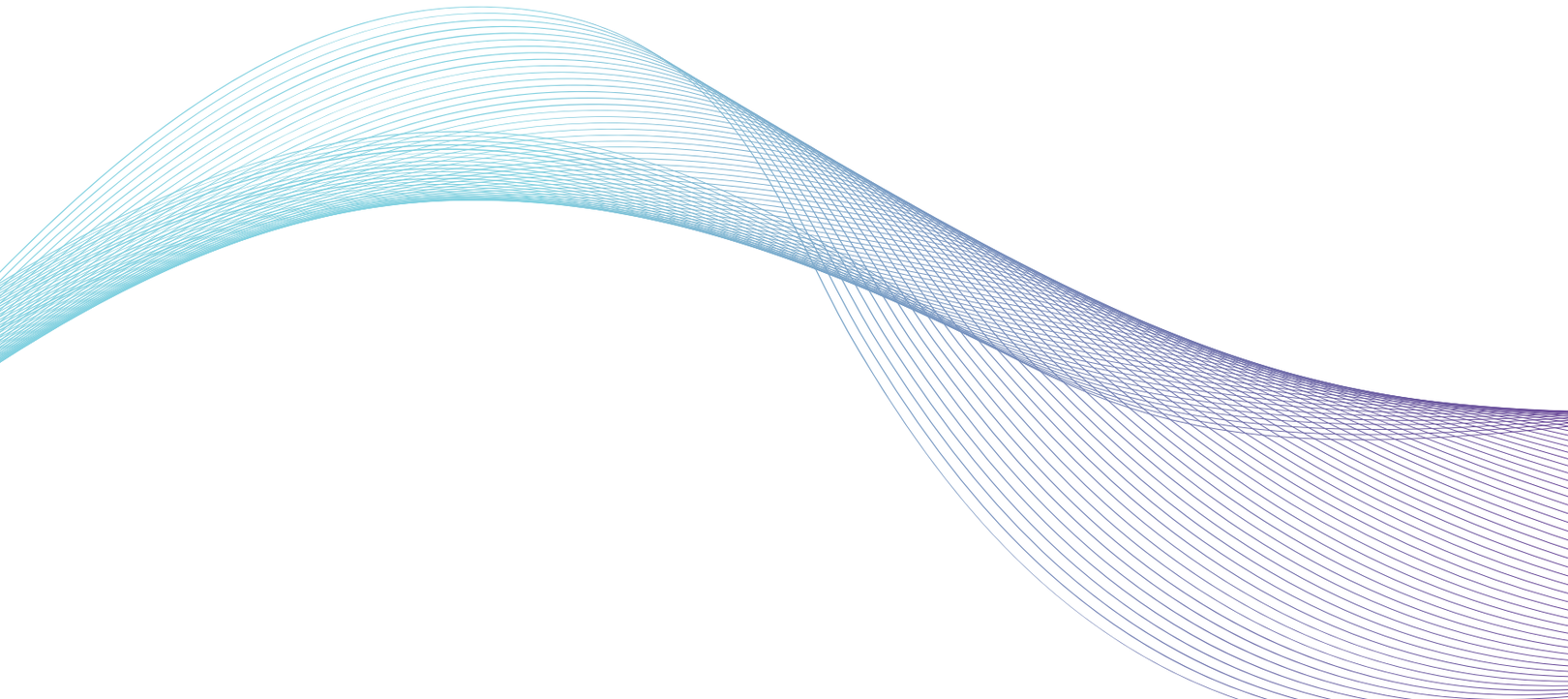


Data Engineering & Analytics Partner for the Life Sciences Industry

Excelra's bioinformatics services for early R&D discovery in pharma includes extraction, management, and analysis of a variety of multi-OMICs data. These are developed and designed to make the data analysis ready for customized workflows, thus enabling informed decision-making through the process of drug development.

Our clients benefit from the synergy of our bioinformatics team, who analyze and interpret complex data; and our R&D IT engineers, who synthesize custom data management solutions.

We offer a wide range of end-to-end data services that include data curation and harmonization to deliver intelligent insights enabling decision-making from early discovery to market access.



Services We Offer

Data Extraction

Excelra provides data extraction, structuring and normalization for multi-OMICs data sets. This is done for a variety of data sources-public data repositories, patient cohorts, legacy internal data etc., to make it analysis ready. Excelra specializes in structuring data sources and formats related to multi-OMICs data. A few examples of the services we provide include:

Workflows to transform scRNAseq datasets from disparate sources into anndata formats

X-Ref datasets for the semantic annotation of internal genetic data across species

Extraction and curation of GEO datasets and their metadata for an indication/ therapy of interest

Data Management

Excelra helps devise custom solutions for the management of multi-OMICs data, that helps make data compliance-friendly and FAIR ensuring rich data provenance. This accelerates the readiness of data for meta-analysis while helping with scalability and reproducibility. A few examples of the services we provide include:

Developing data models for the cataloging of legacy CRISPR data that includes mapping different experimental types, different functional call-outs and the methods used to analyze the data

Audit-friendly interface to retrieve run-logs of OMICs data analysis pipelines on Nextflow

Data Analysis:

Excelra provides analytical services to help generate value from the data being federated. A few examples of the services we provide include:

Bioinformatics
Primary, Secondary, and Tertiary analysis of multiple OMICs data archetypes

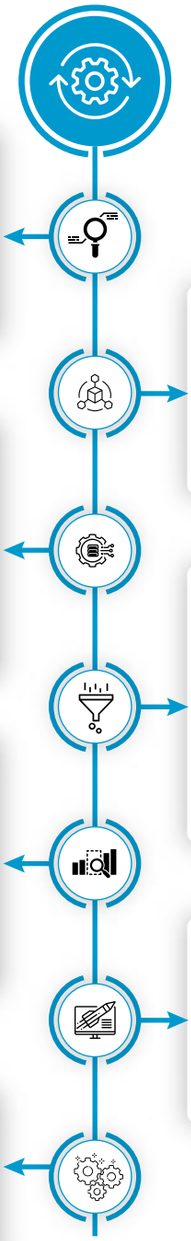
Predictive modelling
OMICs analysis is typically combined with predictive analytics to help understand diseases, pathway networks at a systems level

Biological interpretation
The results from any analytics exercise is put into biological and functional context by corroborating the results from the data-driven methodology with literature-based evidence

- Target/biomarker identification
- Target safety/hazard analysis
- MoA elucidation
- Repositioning services
- Indication prioritization
- Patient stratification/response analysis
- Drug combination prediction
- Target/disease due-diligence

Workflow

Excelra helps with end-to-end multi-OMICs data management starting with shortlisting the appropriate data sources, developing ETL strategies, consolidating outputs from these workflows, and developing a customized application strategy. This could be a meta-analysis workflow to identify response biomarkers to help benchmark research on the client's end or a GUI to access the right data set.



Data Exploration

- Examination by SME's
- Development of use cases
- Data module identification

Schema Development

- Identification of variables
- Data model development

Data Source Scoping

- Identification of data sources
- Development of transformation pipelines & SoP's
- Development of curation tools

Data Curation/Processing

- Manual curation and validation of extracted data
- Automated transformation of data
- QC of data
- Development of DB

Gap Analysis & Reconciliation

- Gap analysis of database
- Reconciliation of gaps by revisiting data model/data sources

Final Development & Launch

- Final validation and launch of workflow
- Data monitoring

Update & Maintenance

- Update of DB based on source

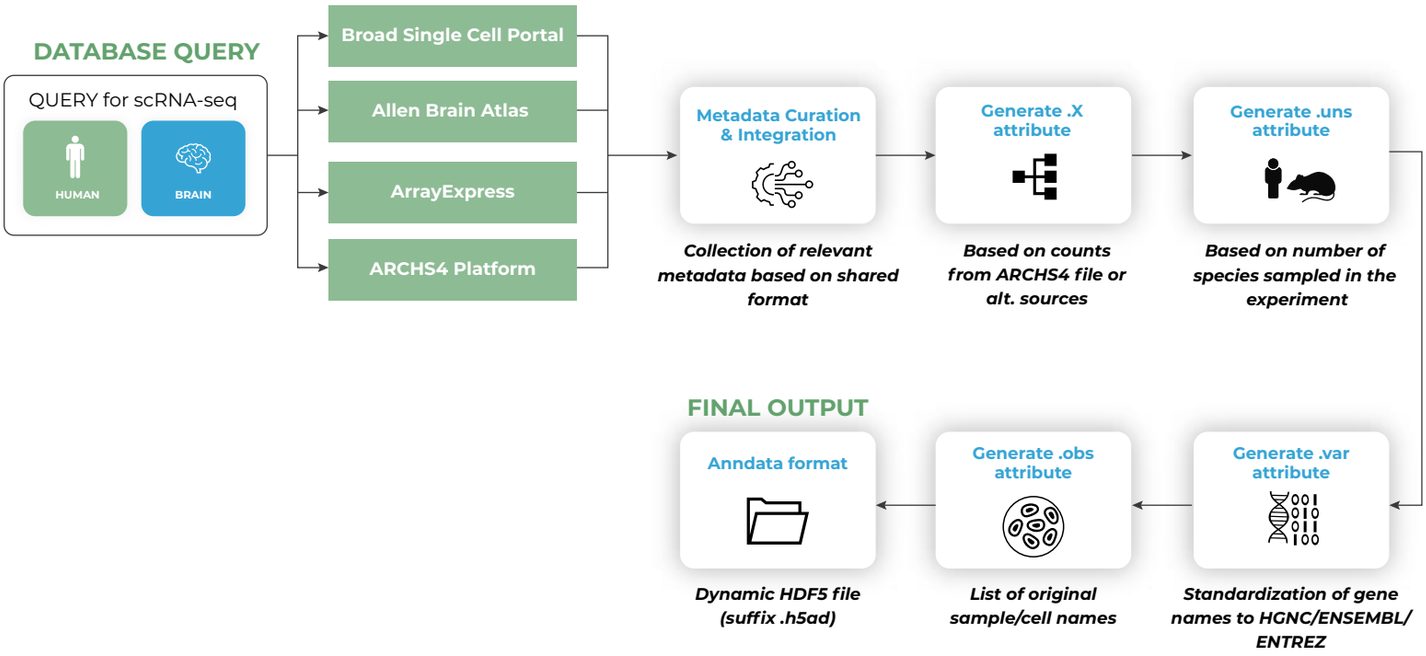
Case Study

End-to-End Data Management for ScRNAseq Data

A mid-sized biotech wanted all scRNAseq data related to human brain cells from the public domain to be presented as a database and normalized into the anndata format. Although the starting point for such processing would be the same for all data, we accelerated a rather cumbersome process of deriving Seurat objects for scRNAseq datasets from a variety of data sources.

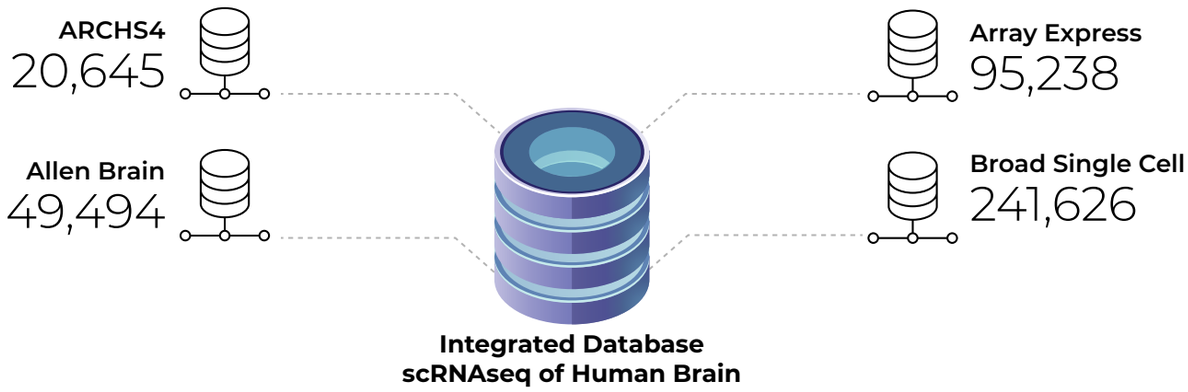
Methodology

Excelra developed ETL pipelines to extract the human brain scRNAseq datasets from four public databases and convert into the anndata format. The five attributes that are part of the file format were generated.



Results

Excelra presented the data extracted from several public data sources in a database format and converted into the anndata format. A snapshot of the number of samples included in the final deliverable is given below:



The Excelra Edge

Experienced business domain experts

Over **750+ employees**, out of which **80%** have a science, statistics or data engineering degree

Long term relationships

90% of our customers are repeat customers

We work with the leaders

16 of the top **20** Pharma companies trust us for their data intelligence

A customer first culture

Meeting customer objectives and improving customer experience is our top priority

Our Certifications

For more information, visit https://www.excelra.com

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About Excelra

Excelra's data and analytics solutions empower innovation in life sciences from molecule to market. The Excelra Edge comes from harmonizing heterogeneous data sets, applying innovative bioinformatics know-how and technologies to accelerate drug discovery & development with reliable and result-oriented insights.

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