

# Bioinformatics Services

The Bioinformatics<sup>™</sup> **POWERHOUSE** 



## How we turn data into value



- Extraction and curation
- Annotation and normalization
- Integration

Data analysis and biological interpretation

- Bioinformatics data analysis
- Immunomics
- Biomarker discovery and development



- Omics pipeline development
- Application development and visualization
- Cloud systems for data storage and analysis



# Data transformation

#### **Extraction and curation**



Metadata curation



Gold standard datasets



stom databases

#### **Our capabilities**

- Structural organization of data from varied sources including public and proprietary databases, publications, patents, regulatory documents, conference proceedings, health records, etc.
- Data sharing and delivery in multiple formats (.tsv, API, etc.) to simplify ingestion into internal repositories
- Implementation of standard ontologies in structured data to comply with industry norms



**ITEROPERABLE** 

USABL

#### **Annotation and normalization**





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#### **Our capabilities**

#### **Cleansing and normalization:**

- Normalization of datasets and batch correction
- De-duplication, missingness analysis, outlier strategies, clustering analysis, and QC

#### **Annotation and enrichment:**

- Ontology mapping across domain vocabularies for interoperability
- Text mining and string-based matching for enrichment from literature

### Integration







#### **Our capabilities**

- Source data analysis, variable mapping, and clustering
- Data model development, database architecture, ETL development, and testing
- Warehousing, maintenance, gap analysis, and redundancy check





## **Data analysis and biological interpretation**

• Target ID and development



#### **Our capabilities**

- Multiomics data analysis and interpretation
- Real-world evidence through the analysis of clinical patient data

Biomarker ID and development Agrigenomics Immunomics

- Customized pipelines for data analysis
- Systems biology simulations
- Predictive machine learning, modeling, and simulations

#### **Our platforms**

- Online Pipeline Platform (OP<sup>2</sup>) to access and run data analysis pipelines
- ImmunoRaptor platform to easily manage and analyze immune repertoire sequencing data





## **R&D IT for bioinformatics**



Configurable dockerized omics analysis pipelines

SME consulting for infrastructure



Cloud systems for data storage and analysis

Intuitive visualization

dashboards



#### Excelra-client engagement:

development

Conceptualize, design, and develop in collaboration with clients

- Service-oriented architecture (SOA), microservices architecture, and cloud-based custom application and platform development
- Agile, Scrum, Visual Studio Team Services (VSTS), Jira and GitLab are employed for development process
- Framework development is done on R shiny, HTML, JS, NextFlow, etc.
- Visualization is done on Spotfire, Tableau, R shiny, etc.
- Automated, functional, and performance testing of developed applications and platforms
- Cloud-based (AWS, AZURE, GCP) as well as on-premises deployment of applications and platforms

#### **Custom pipeline development:**

- Building pipelines for a variety of bioinformatics analyses
- Primary, secondary, and tertiary analysis for a variety of data for multiple domains, i.e., genomics, single-cell, proteomics, immunology, microbiome and vaccinology
- CryoEM, DEL library hit identification, etc.
- Complex downstream analysis including cell deconvolution and off-target analysis

• Creating containerized pipelines as per custom need

• Functional validation with client-provided test data or data from public domain

• Deployment on various data analysis and management tools including DNANexus, SevenBridges, AWS etc.

• Job scheduling with NextFlow, AirFlow, SnakeMake, etc.

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## Modes of engagement

#### Fixed-term engagement (FTE)

FTE agreement is based on estimated headcount and timeframe

#### Fee for service (FFS)

FFS engagement is project based, with defined goals and milestone-based delivery

Excelra's service workflows deliver rapid, agile improvements to on your team's drug discovery and development journey. We meet all your bioinformatics needs with our service-friendly infrastructure and our cross-functional team of experts.



- Dedicated cloud space for data sharing, compliant with all relevant regulations
- Access to tools, technologies, and knowledge bases
- Quick turnaround time with open, timely, and clearly defined communication
- Regular project updates

## Why us?

COD

#### **Experienced domain experts and consultants**

Over 1000 employees, highly qualified in science, statistics, and data engineering



#### Long-term relationships

9 out of 10 of our customers return to us for new projects



#### We work with the leaders

16 of the top 20 pharma companies trust us with their data



#### A customer-first culture

Meeting customer objectives and improving customer experience are our top priorities





# Where data means more

# The Bioinformatics<sup>™</sup> POWERHOUSE

Connect with our experts: marketing@excelra.com

https://bioinformaticspowerhouse.com/

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