CASE STUDY

ACCELERATING SCIENTIFIC DISCOVERY with DNAnexus® Apollo™

How one pharma company has advanced their drug discovery & development process

COMPANY OVERVIEW

A leading global biologics research and development company embarked on an ambitious plan to accelerate the discovery of new therapeutic targets through population genetics on a cohort of over one million genomes.

Their drug discovery and development efforts focus on three core therapeutic areas:

- Oncology
- Respiratory, Inflammation and Autoimmune
- Cardiovascular and Metabolic Disease

THE CHALLENGE: Embracing Diversity At-Scale

As the company expanded their portfolio of biologic therapeutic agents, and incorporated translational and precision approaches to their R&D pipeline, they faced a deluge of data. The R&D teams had access to massive volumes of combined clinical and genomic data to interrogate for targets and biomarkers of disease subtype, progression and therapy response. But combining genomics with clinical data was just one layer of complexity. The company required the integration of transcriptomics, metabolomics, and proteomics data to provide a systems approach to better understand these complex diseases and the diversity of patients' responses to new immunotherapies.

Additionally, the volume and variety of these complex multi-omic biomedical datasets created a collaboration problem. With hundreds of research projects and lead compounds in the R&D pipeline, scientists with divergent skill sets all needed to be able to view, query, and impart their own unique expertise to the data analysis strategy, which required a single platform. Given the complexity, iterative nature, and scale of these efforts, it was essential that the platform infrastructure and features meet data integration, communication and collaboration demands across R&D teams as well as with cross-sector partnerships.

Challenges to remain compliant with current and future regulations, standards, and industry frameworks were mounting, and required a significant amount of time and resources, detracting from the key focus of the R&D teams. Depending on where the data was generated (clinical trials, open-source basic research studies, pre-competitive large-scale population sequencing projects), there were very different rules on how the data could be accessed and used, often due to differences in informed consent. Data protection standards unique to the countries where the data was generated (e.g. GDPR) required a platform with robust authentication and authorization infrastructure, track-and-trace functionality of people, objects, data and information, and clear data and object governance in order to ensure datasets could be accessed and shared across global R&D teams in compliance with those standards.

THE SOLUTION: Population-Scale Informatics

The company chose to use DNAnexus Apollo, an advanced platform for multi-omics and clinical data exploration, analysis, and visualization, which provided a scalable cloud environment, flexible data models, and intuitive analysis and visualization tools to address the challenges of scale, collaboration, and compliance inherent when working with large and complex datasets.

DNAnexus Apollo enables therapeutic area researchers to flexibly explore cohorts, integrate, harmonize and analyze phenotypic and multi-omic data, and rapidly test multiple hypotheses to gain valuable insight.

Bioinformaticians are able to build best-in-class pipelines and workflows, and deploy their own proprietary and open-source tools to facilitate the iterative nature of therapeutic area researcher's interrogation of data. All of this is done in a federated analytics environment, an absolute requirement for meeting rigorous compliance standards (GDPR, HIPAA, CLIA, GxP, FedRAMP and more) applied to data generated and stored in different countries and accessed across multiple global research sites.

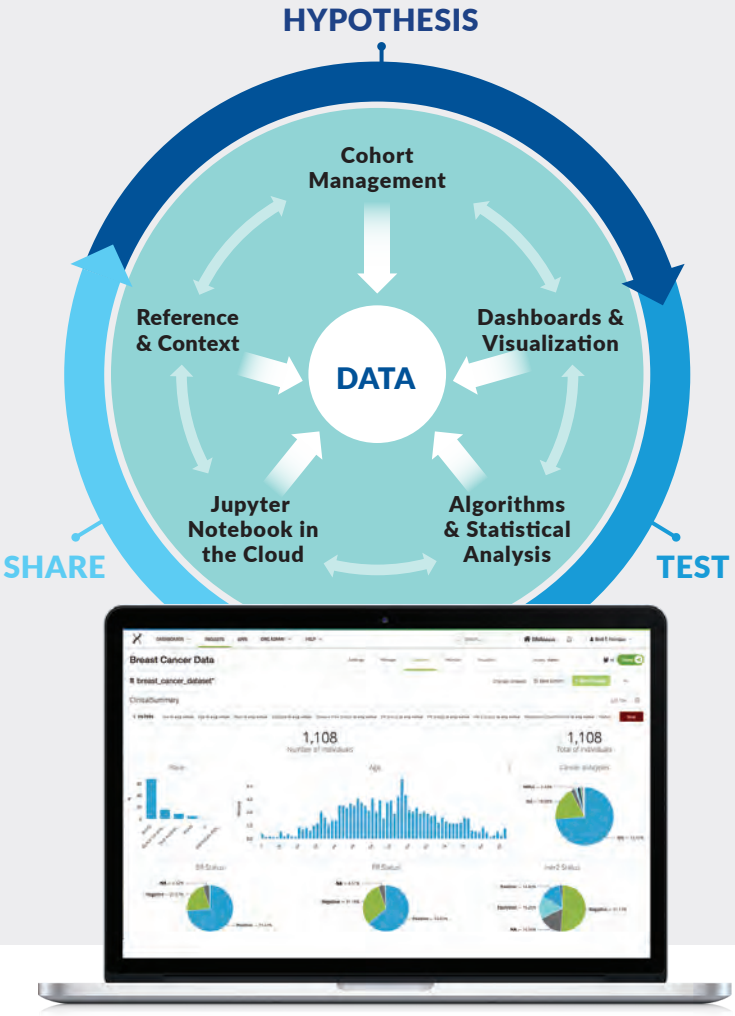
DNAnexus Apollo™ Empowering Researchers with Actionable Intelligence

FEATURED USE CASES:

Biomarker Discovery
Leverage structured databases and tools to reveal associations between genetic, phenotypic and clinical information.

Patient Stratification
Explore molecular and clinical inclusion and exclusion criteria to match patients to optimal treatment arms.

Drug Repositioning
Discover new potential applications for existing therapeutic agents by revealing shared molecular and phenotypic characteristics.



ABOUT DNAnexus

DNAnexus has built the world's most secure cloud platform and global network for scientific collaboration and accelerated discovery. We embrace challenges and partnership to tackle the world's most exciting opportunities across a spectrum of industries – biopharmaceutical, bioagricultural, sequencing services, clinical diagnostics, medical centers, government, and research consortia.