

ORACLE HEALTH SCIENCES OMICS DATA BANK

POWERFUL ANALYSIS OF
MOLECULAR DATA SETS FOR
BIOMARKER DISCOVERY

KEY FEATURES

- Conforms to the central dogma of molecular biology
- Supports cross-platform and cross-modality
- Optimized for real-time querying
- Out-of-the-box integration with clinical information in Oracle Health Sciences Translational Research Center solutions
- Compatible with clinical data sources of your choice

KEY BENEFITS

- Query thousands of whole genomes fast
- Consolidate siloed flat file-based storage
- Centralize omics data storage
- Leverage community knowledge
- Manage reference information efficiently
- Take on projects requiring massive scale

Oracle Health Sciences Omics Data Bank—part of the Oracle Health Sciences Translational Research Center solution—enables turnkey integration and analysis of multiple types of molecular data including whole genome sequencing and gene expression data irrespective of platform. This robust, scalable, cross-platform, multiomics modality model provides researchers with unprecedented power and agility in analyzing large molecular data sets from internal and external sources in the pursuit of biomarkers.

Oracle Health Sciences Omics Data Bank is a flexible, standards-based data model that delivers the extreme performance required for querying vast data sets typical of today's translational research studies. Adding omics capability to the Oracle Health Sciences Translational Research Center solution enables researchers to create queries that integrate both genotype and phenotype data, thereby increasing reliability of biomarker predictions while reducing overall time to biomarker discovery.

Quick Insight for Researchers

Biomarkers are the currency of translational medicine. Finding and validating biomarkers empowers researchers to develop therapies that meet the specific needs of each individual patient. This improves outcomes, minimizes adverse events, and lowers costs. But omics research involves gleaning insights from massive amounts of data that is often stored in a multitude of flat files scattered across a file system. These can be difficult to query across experiments and platforms, time-consuming to manage, and complicated to trace.

Oracle Health Sciences Omics Data Bank simplifies the process of doing biomarker research by providing a framework for omics data to be integrated with public domain data sets so that researchers can ask biologically meaningful questions in a genomics context. The solution includes out-of-the-box adapters for loading customer-generated molecular profiling data, as well as public domain data from sources such as Ensembl, The Cancer Genome Atlas, and Pathway Commons to further speed time to value.

Using Oracle Health Sciences Omics Data Bank, users can:

- Integrate and analyze cross-platform omics data regardless of scientific approach and technology
- Analyze internal data sets in the context of large public domain data sets
- Leverage public domain reference data sets that provide out-of-the-box biological context ready for immediate query
- Visualize omics data with state-of-the-art visualization tools
- Identify and validate biomarkers through a single, integrated, analysis-ready view of clinical and omics data

- Quickly execute real-time queries on high-performance hardware
- Analyze hundreds of thousands of whole genomes using a scalable platform

These and other features enable your world-class research team to quickly glean insights and stay ahead of the pack.

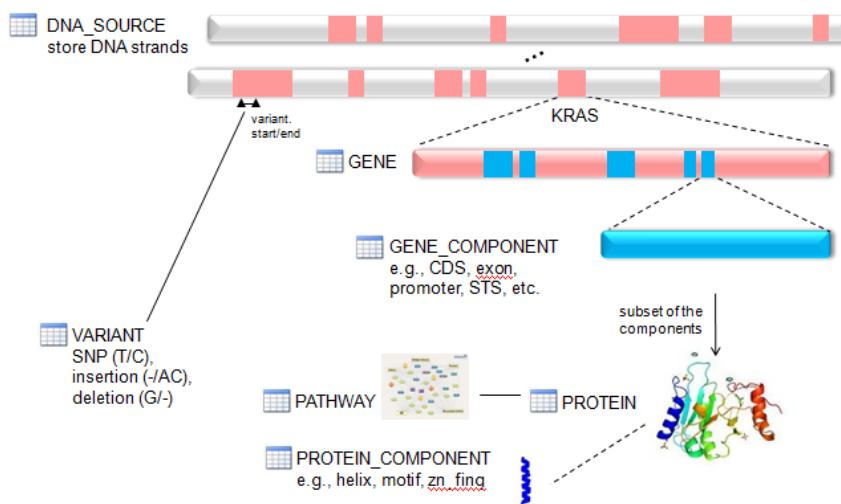


Figure 1: Oracle Health Sciences Omics Data Bank modeled on the central dogma of molecular biology.

Rapid Implementation, Predictable Costs Lead to Higher ROI

Building a data analytics platform is a significant undertaking. Choosing the technologies, building custom integrations, and testing all take time and resources, and carry a risk. Once the systems are up and running, ensuring that the systems can scale as operations grow can require unanticipated costs. Maintaining systems once they are integrated can also add unexpected expense, especially in an area such as bioinformatics where standards are few and far between.

To mitigate risk, speed time to ROI, and improve analytics capabilities, Oracle productized one of the most complex elements of the biomarker research analysis process: omics. By providing a flexible, standards-based model that integrates seamlessly with Oracle Health Sciences Translational Research Center solution, researchers get world-class analytics in a fraction of the time and with less risk. Oracle Health Sciences Omics Data Bank is a comprehensive, out-of-the-box solution that allows in-house resources and bioinformaticians to focus on their core research strengths. Knowing that products will scale and work together for the long haul is essential in such a rapidly evolving field as translational research.

Purpose-Built for Omics Research

Many business-intelligence projects share common characteristics. But the multitudes of omics technologies available to researchers today are different. They are based on biological models rather than business processes. This means that to deliver industry-leading translational research analysis capabilities, it is critical that the design of the data structure be based on a strong knowledge of molecular biology and clinical care.

Oracle Health Sciences Omics Data Bank is designed according to the central dogma of molecular biology. It leverages Oracle's knowledgeable in-house bioinformatics team, pedigree in data management and integration, and renowned development best practices. The result is a system that meets the specific requirements of today's researchers. By centralizing and integrating clinical and omics data, Oracle gives researchers tremendous cross-platform querying power that saves time, lowers resource requirements, and helps lead to novel biomarker discovery.

Conclusion

For research organizations seeking to discover and validate novel biomarkers more quickly, Oracle Health Sciences Omics Data Bank provides a productized, rich, extensible framework. By integrating it with the other elements of Oracle Health Sciences Translational Research Center solution, researchers can quickly and reliably query both millions of patients and hundreds of thousands of whole genome sequences simultaneously to gain valuable insight.

Why Oracle Health Sciences

Backed by the resources of a Global 500 company, Oracle Health Sciences provides you with the industry's most comprehensive set of software solutions addressing every aspect of the health value chain from discovery to care delivery. With thousands of professionals in offices throughout North America, EMEA, and Asia, Oracle Health Sciences offers unmatched resources to enable your organization's goals, today and in the future.

Contact Us

For more information about Oracle Health Sciences Omics Data Bank, visit www.oracle.com/healthsciences, email healthsciences_ww_grp@oracle.com, or call +1 800.633.0643 to speak to an Oracle representative.



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