



Life sciences organizations increasingly recognize that graph-driven artificial intelligence (AI) and analytics are essential to accelerate R&D innovation, optimize processes and drive new business growth.

In a recent GlobalData survey, pharmaceutical firms named Big Data and AI as their top two areas of technology investment over the next two years.¹

However, implementing graph database technology is proving increasingly difficult. The majority of graph tools are struggling to keep up with unprecedented levels of scale and computing power now required for predictive/AI analytics of vast volumes of complex biomedical data spanning a wide array of knowledge sources.

Katana Graph is a breakthrough graph intelligence platform that enables life sciences organizations to reap the huge potential of graph processing and AI, at levels of scale and performance no other data platform can match.

From virtual screening of drugs to managing healthcare providers participating in clinical trials, the Katana Graph platform helps biopharma companies use graph algorithms to discover new opportunities and efficiencies throughout the life sciences value chain.

The Katana Graph computing platform interoperates with its own graph database system, providing a single high-performance distributed graph computation platform for life sciences:



Graph Queries (e.g., virtual screening of ChEMBL database, trial management)



Graph Analytics (substructure searches, similarity search, fingerprint generation)



Graph Mining (pattern discovery)



Graph AI & Deep Machine Learning (patient classification, drug retargeting, precision medicine)

[1] Source: pharmaceutical-technology.com, 11 June 2021.

Use Cases for Health and Life Sciences and Katana Components

Drug Discovery	Drug Retargeting Compound property / Toxicity prediction Virtual screening	Graph Analytics, Graph Mining, Graph AI
Precision Medicine	Patient selection Safe and targeted trials based on biomolecular profile	Graph Query, Graph AI
Genomics	Ontologies NLP	Graph Query, Graph AI
Medical Knowledge Graph	Ingest large volume of heterogenous data Ability to run heterogenous workloads Ability to iteratively expand the KG with new dataset ingested	Graph AI, Graph Query
Physician Management	Selection of Primary investigator based on your trial history Understand Affiliations of Physicians Plan Payer Management	Graph Analytics, Graph Mining

The success of many life sciences use cases lies in the speed and accuracy in which hypotheses can be generated and tested. Katana Graph shines over alternative solutions, providing proven, unrivaled speed and scale – “time to insight” – on a wide array of medical knowledge graphs.

Katana Graph also provides graph AI with graph neural networks (GNN), a new powerful approach for feature learning on graphs. Katana provides easy-to-use and scale-out packages for learning large-scale knowledge graph embeddings, applications such as node classification, link prediction, and recommendation systems essential for bioinformatics and cheminformatics.

The Katana Graph platform can also be extended to run third party algorithms. For example, analytical libraries that have Python interfaces can be run as UDFs (User Defined Functions) on our high performance distributed graph computation platform. Katana Graph can serve as a single integrated platform to fulfill all your data engineering, data mining and graph AI application development needs.

Katana Graph enables life sciences enterprises to accelerate time-sensitive, data-driven business decisions from R&D to clinical trials with an easy-to-use platform. Scientists, analysts, managers and executives alike gain new levels of actionable insight, drawn from high-performance graph algorithms on massive heterogeneous data sets.

Contact Katana Graph today! info@katanagraph.com