KATANA GRAPH

HEALTH & LIFE SCIENCES

Data Sheet: Drug Discovery

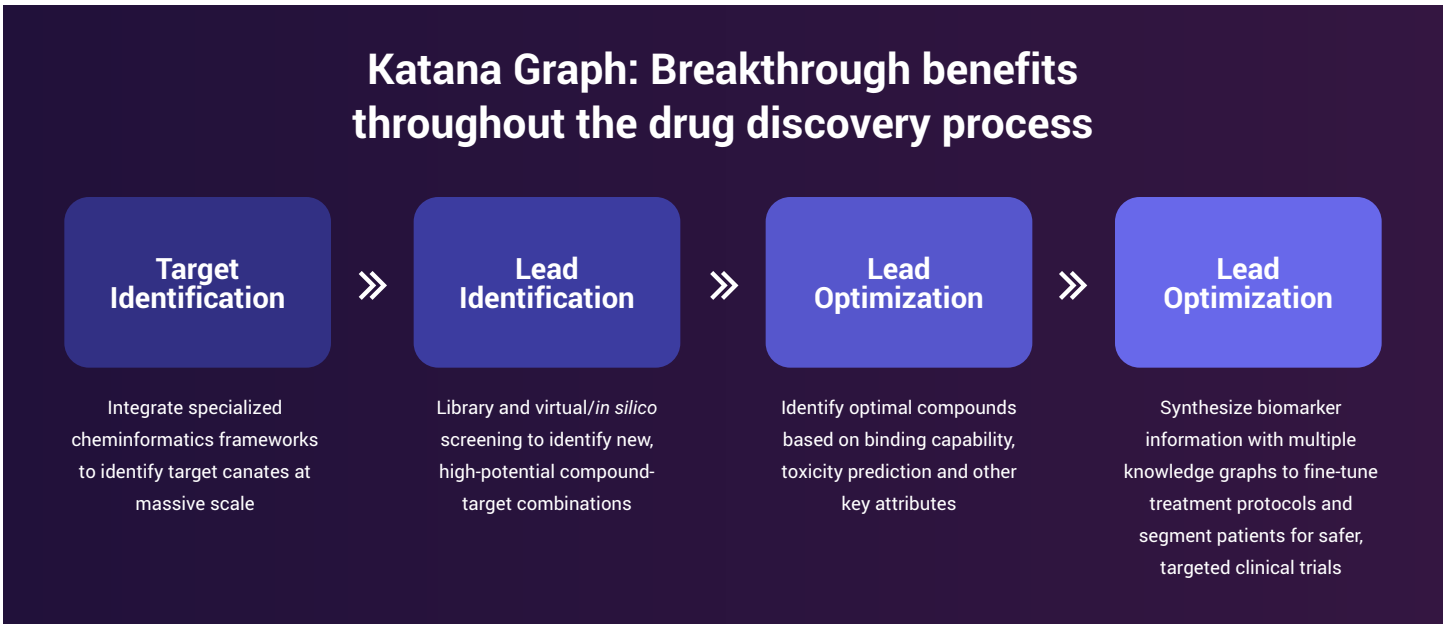
Life Sciences organizations are under more pressure than ever before to accelerate R&D innovation. Developing a new drug, biologic, or medical device can take 8-16 years and cost billions of dollars.

Graph and artificial intelligence both offer tremendous potential for breakthrough advances in drug discovery; however, implementing such tools are 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, synthesized from multiple disparate sources.

Katana Graph™ offers a fully integrated graph intelligence platform designed to transform your drug discovery process.

Katana Graph enables life sciences knowledge workers to store, query, mine and develop AI models using heterogeneous data sources, to reveal breakthrough insights at levels of scale and performance no other data platform can match.

Researchers in bioinformatics and cheminformatics, as well as scientists, computational biologists and immunotherapists, can utilize Katana Graph to design, synthesize, optimize and retarget molecules; design better, targeted and safer clinical trials, and much more.



Unrivaled graph platform scale, performance and extensibility

Unlike traditional graph technologies that use centralized, in-database graph query and analytics and a separate pipeline for AI applications, Katana Graph supports decentralized workloads for graph query, analytics, mining and AI modeling, at exceptional scale and performance. For example, Katana Graph users can run domain specific frameworks such as RDKit.

Discovering vital new insights requires data from various disparate modalities to be combined at unprecedented scale. Recognizing this, the Katana Graph intelligence platform provides seamless interfaces to query chemical molecules, bioinformatics and cheminformatics knowledge graphs, gene expression and patient clinical data, for ever-expanding knowledge graphs that increasingly simulate complex biological systems.

Katana Graph 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 graph intelligence platform can also be extended to run third party algorithms. For example, analytical libraries with Python interfaces can be run as UDF's (User Defined Functions) on Katana Graph

Your trusted life sciences graph technology partner and innovator

Our dedicated Katana Graph team has decades of proven experience in graph databases, algorithms, high performance computing, virtualization and storage. We are actively expanding our technology and innovation leadership for life sciences in many ways, including

- **New health and life sciences dataset marketplace.** The marketplace, once ready, will allow users to combine curated data from various vendors of biological knowledge graphs, anonymized patient clinical data, chemical molecule graphs, pathology slides and more
- **New graph AI library to explore novel spaces and broaden drug candidate pool,** using generative modeling and GNNs, GCNs and GTNs under development
- **AI models for new insights into patient clinical trial responses.** New AI models under development with biopharma firms will combine gene expression data with genotypic, imaging, clinical records, and epidemiological information, for use with biomarker detection tool kits for patient stratification
- **Integration of image processing algorithms** to quantify and locate lesions (tumors) in pathology slides and MRI scans automatically, while also further enhancing the predictive power of our graph AI models
- **Advanced explainability of graph AI models.** Recognizing AI models can no longer be black boxes, we are working on integrating cutting-edge explainability methods such as GNNExplainer and Guided Gradient (GGD) methods into the Katana Graph platform

Discover how Katana Graph's advanced innovation in graph computing, intelligence and AI can empower your organization's drug discovery innovation efforts.

Contact Katana Graph today! info@katanagraph.com