



GenomicKB: A Knowledgebase for the Human Genome

TECHNOLOGY NUMBER: 2024-011

Technology ID

2024-011

Category

Software

Content

Software & Content

Inventor

Jie Liu

Fan Feng

Yijia Gao

Shuyuan Yang

Dongyu Zhu

Yuanhao Huang

Yiqun Wang

Further information

Surin Mong

smong@umich.edu

[View online](#)



OVERVIEW

- Human genome graph database
- Over 347 million genomic entities, 1.36 billion relations, and 3.9 billion entity and relation properties
- Web-based query system which allows users to query the knowledge graph with customized graph patterns and specific constraints

INNOVATION

Genomic Knowledgebase (GenomicKB) is a graph database for researchers to explore and investigate human genome, epigenome, transcriptome, and 4D nucleome with simple and efficient queries. The database uses a knowledge graph to consolidate genomic datasets and annotations from over 30 consortia and portals, including 347 million genomic entities, 1.36 billion relations, and 3.9 billion entity and relation properties. GenomicKB is equipped with a web-based query system (<https://gkb.dcmdb.med.umich.edu/>) which allows users to query the knowledge graph with customized graph patterns and specific constraints on entities and relations. Compared with traditional tabular-structured data stored in separate data portals, GenomicKB emphasizes the relations among genomic entities, intuitively connects isolated data matrices, and supports efficient queries for scientific discoveries. GenomicKB transforms complicated analysis among multiple genomic entities and relations into coding-free queries, and facilitates data-driven genomic discoveries in the future.

OTHER

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