


KEGG



- [Kyoto Encyclopedia of Genes and Genomes](http://www.genome.jp/kegg/)
- www.genome.jp/kegg/

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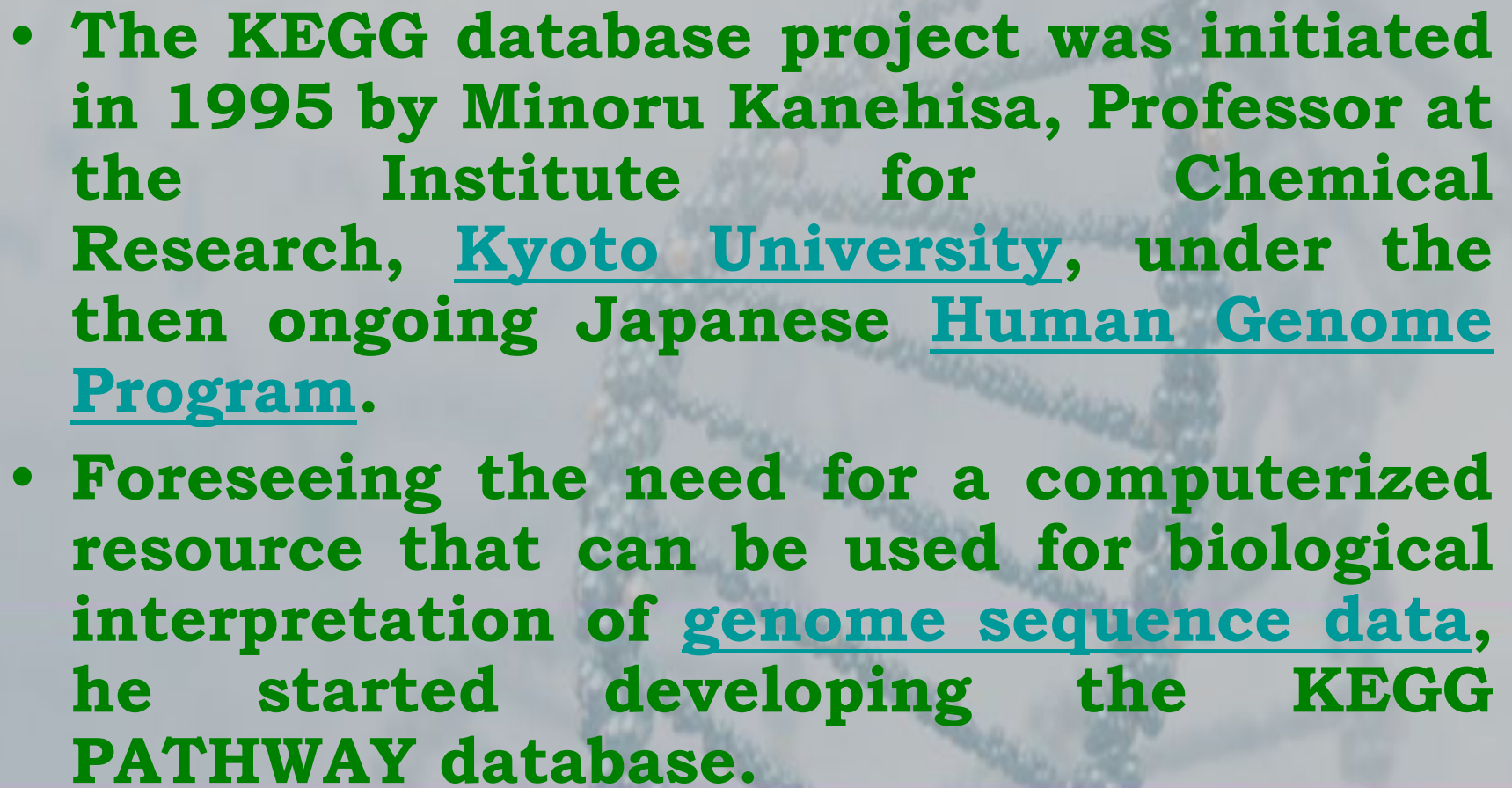
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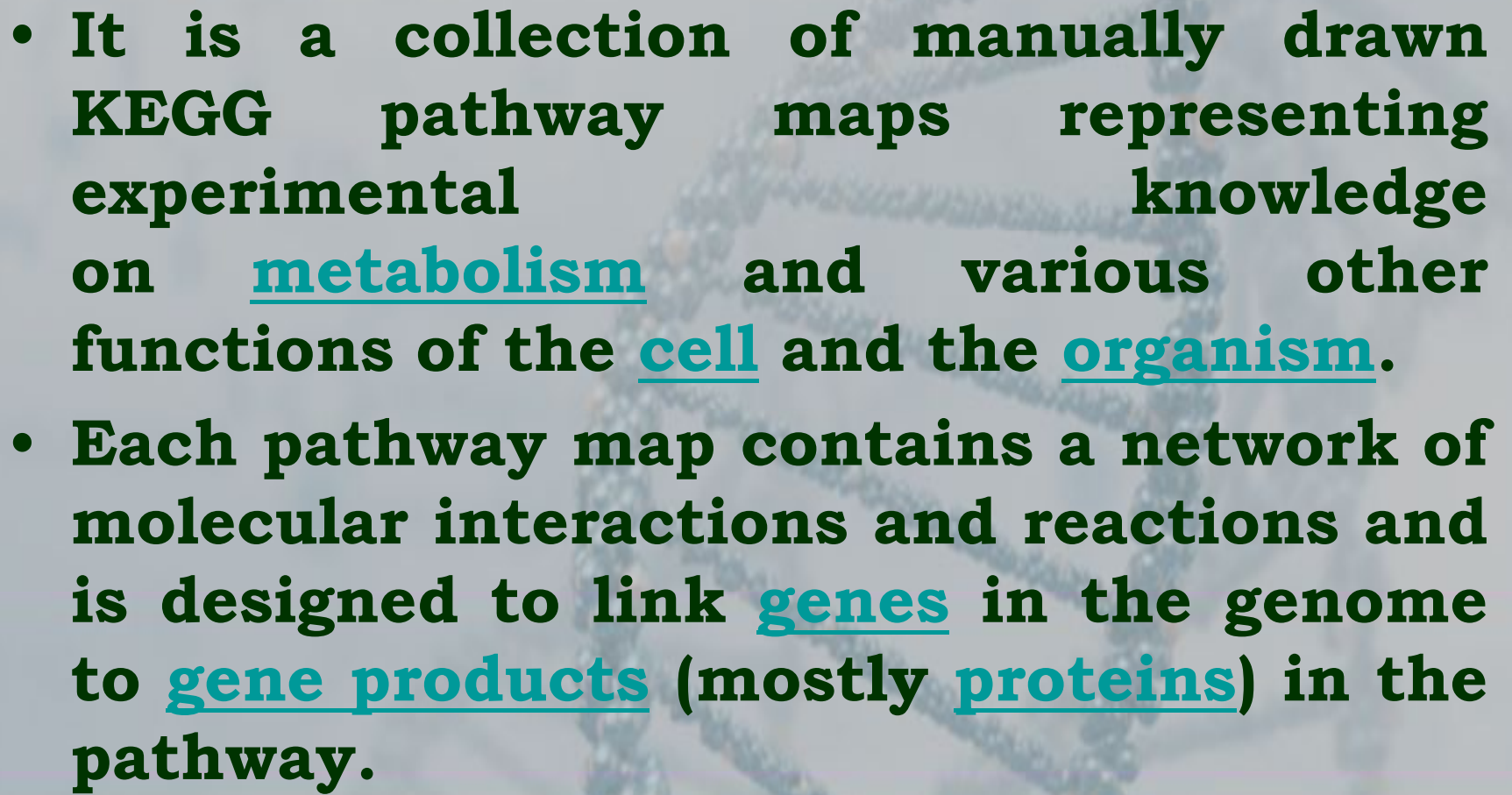
KEGG: Kyoto Encyclopedia of Genes and Genomes

KEGG is a database resource for understanding high-level functions and utilities of the biological system, such as the cell, the organism and the ecosystem, from molecular-level information, especially large-scale molecular datasets generated by genome sequencing and other high-throughput experimental technologies (See [Release notes](#) for new and updated features).

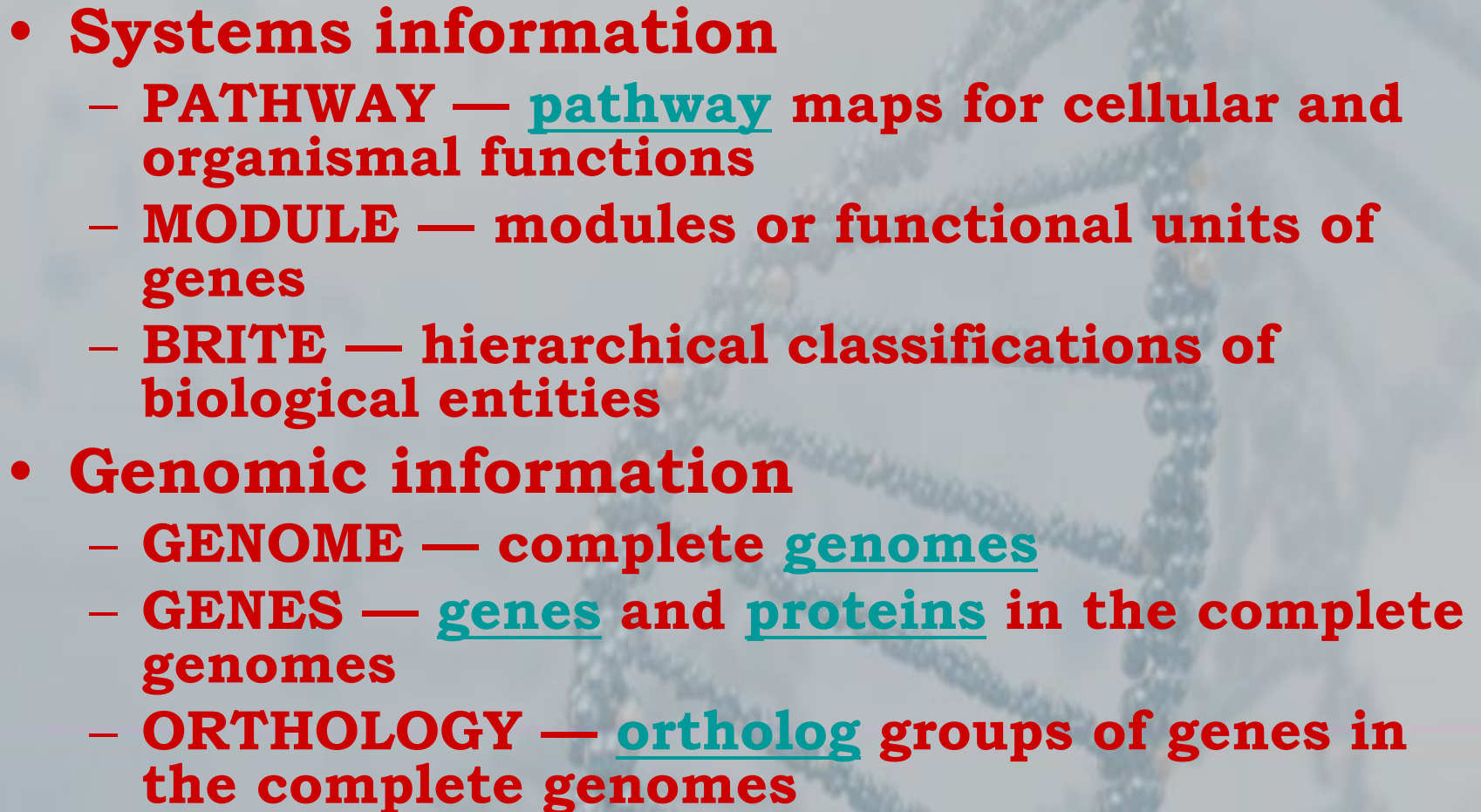
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- **Kyoto Encyclopedia of Genes and Genomes**
- **collection of databases dealing with genomes, biological pathways, diseases, drugs, and chemical substances.**
- **KEGG is utilized for bioinformatics research and education, including data analysis in genomics, metagenomics, metabolomics and other omics studies, modeling and simulation in systems biology, and translational research in drug development.**

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- **The KEGG database project was initiated in 1995 by Minoru Kanehisa, Professor at the Institute for Chemical Research, Kyoto University, under the then ongoing Japanese Human Genome Program.**
 - **Foreseeing the need for a computerized resource that can be used for biological interpretation of genome sequence data, he started developing the KEGG PATHWAY database.**

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- It is a collection of manually drawn KEGG pathway maps representing experimental knowledge on metabolism and various other functions of the cell and the organism.
 - Each pathway map contains a network of molecular interactions and reactions and is designed to link genes in the genome to gene products (mostly proteins) in the pathway.

- According to the developers, KEGG is a "computer representation" of the biological system.
- It integrates building blocks and wiring diagrams of the system — more specifically, genetic building blocks of genes and proteins, chemical building blocks of small molecules and reactions, and wiring diagrams of molecular interaction and reaction networks.
- This concept is realized in the following databases of KEGG, which are categorized into systems, genomic, chemical, and health information.

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- **Systems information**
 - **PATHWAY** — pathway maps for cellular and organismal functions
 - **MODULE** — modules or functional units of genes
 - **BRITE** — hierarchical classifications of biological entities
 - **Genomic information**
 - **GENOME** — complete genomes
 - **GENES** — genes and proteins in the complete genomes
 - **ORTHOLOGY** — ortholog groups of genes in the complete genomes

- **Substances Chemical information**
 - **COMPOUND, GLYCAN** — chemical compounds and glycans
 - **REACTION, RPAIR, RCLASS** — chemical reactions
 - **ENZYME** — enzyme nomenclature
- **Health information**
 - **DISEASE** — human diseases
 - **DRUG** — approved drugs
 - **ENVIRON** — crude drugs and health-related