

BC|GENE & BC|SNP Suites

Data Management for Genetic Research

Modern genetic analysis presents researchers with the opportunity for breakthroughs – and the challenge of overwhelming amounts of data. This unprecedented bulk of data, and the management that it requires, diverts resources and focus from the more scientifically relevant tasks.

BC|GENE and BC|SNP solutions are database platforms, integrating high-density SNP genotype data with phenotypes and maps to create productive data analysis pipelines. They simplify genetic data management, automate tedious data management tasks and facilitate analysis workflows.

BC|GENE and BC|SNP Suites offer a range of applications to fit the needs of groups of various sizes and approaches.

BC|GENE Lite and **BC|GENE** are database solutions for

- Small to medium sized population studies
- Linkage and other family based studies
- Candidate gene studies
- Fine-mapping studies

BC|SNP and **BC|SNPmax** are database solutions for

- Large genome-wide studies
- Large family based studies
- Collaborative studies with large amounts of data

BC|SNPmax Enterprise is the database solution for

- Research consortia; university and campus level database systems
- A very large number of users with a large amount of data
- Institutes in which the database must be integrated with existing IT resources and authentication mechanisms

Getting the most from your valuable research data

BC|GENE and BC|SNP database platforms have a secure web browser interface. The easy-to-use web browser access facilitates the management and sharing of data within a research team and between research collaborators.

Additionally, the secure remote access enables working from external locations and can be used for multi-center collection of clinical data.

Team members can have different user profiles as well as differing rights to access data. Comprehensive log files cover all data entries and modifications and system access allowing the tracing of every variable's change history.

Secure data warehouse for research data

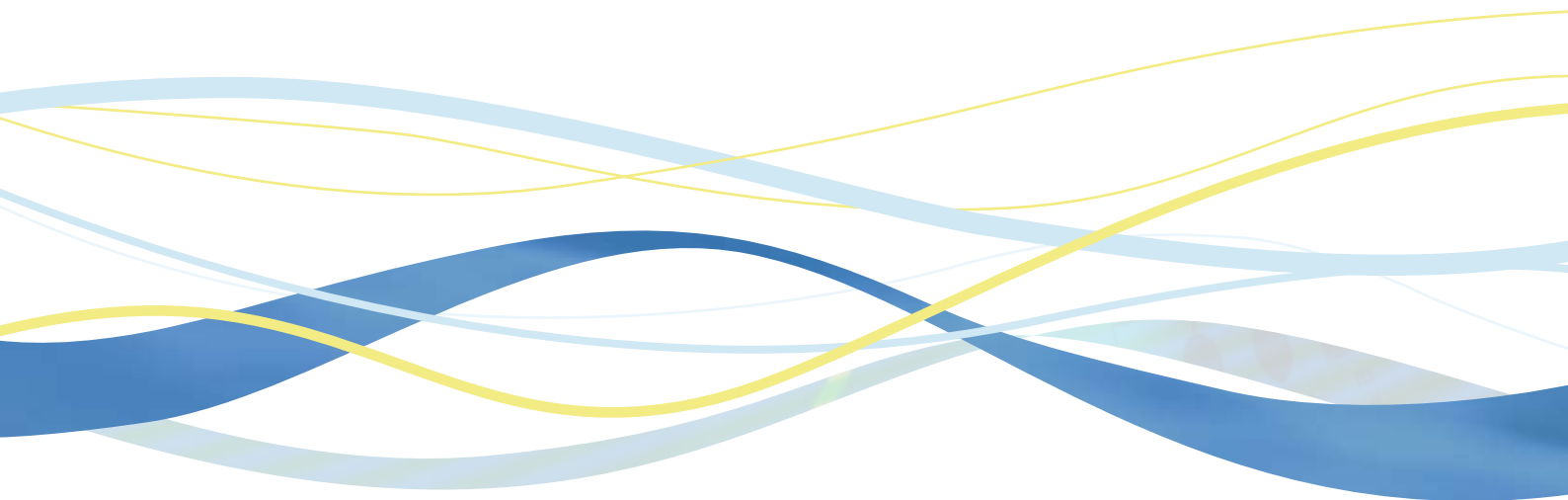
BC|GENE and BC|SNP solutions have been designed to manage and analyze the large amount of SNP genotyping data produced by modern high-throughput instruments. Output files from these devices can be directly uploaded into the database. Converter functions for other data formats can be easily added to the platforms.

Additionally, researchers can gather and manage large public control datasets or imputed datasets in a compressed format, saving disk space and significantly improving performance.

BC|GENE and BC|SNP Suite solutions also offer a BC|FORMS tool for designing questionnaire forms for clinical data. Aside from gathering and managing clinical datasets, researchers can design custom datasets for storing, for example, SNP quality information, analysis results and CNV data.

Benefits for researchers

- Efficient data uploading and tracking of changes
- Automation of tedious data management and formatting tasks
- User-friendly interface for the analysis methods of your choice
- More efficient data analysis for faster publishing
- Assistance and expertise in data management and analysis
- Regular updates, support for new data types and genetic analysis programs
- Scalability from small studies to the largest of studies
- A cost-effective solution which can be quickly deployed

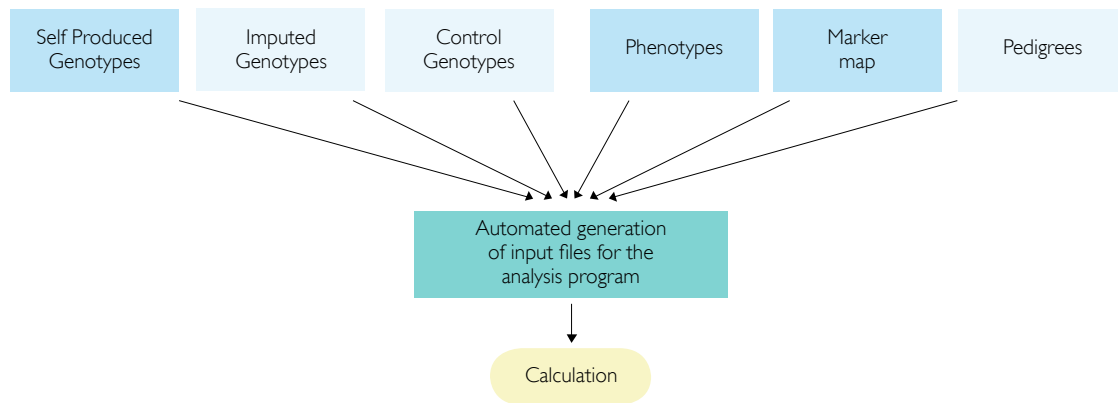


Efficient and flexible data analysis

BC|GENE and BC|SNP Suite solutions provide a user-friendly web browser interface for working with the analysis programs of your choice. Additionally, the system offers a flexible method for generating workflows for high-performance, parallel data analysis.

Through the web browser interface, you can combine data from multiple sources, filter individuals or SNPs based on various criteria, such as quality, location, and previous analysis results. Data analysis is further enhanced by automated procedures for data format conversions and speed optimized analysis workflows.

BC|SNP Suite offers special functions and features to tackle the challenge of managing massive amounts of data. An advanced built-in queue system interleaves large database transactions and calculation tasks, enabling efficient use of calculation capacity. Analysis runs containing a large number of SNPs can be automatically divided into multiple smaller tasks, the results of which the system then collates into one file.



BC|GENE and BC|SNP data management solutions facilitate the use of the best analysis programs developed in academia. Additional analysis programs or custom applications can be integrated using the system's Application Programming Interface (API).

Supported analysis methods

- Data quality checks
- Association and linkage disequilibrium
- Population stratification
- Haplotyping
- Scripting (R, SAS®)
- Imputing (in-silico-genotyping)
- Gateway to genome browsers
- Linkage analysis
- TDT and family based association
- Epistasis
- Data exports to SPSS®, STATA®, Excel®

Technology Overview

BC|GENE and BC|SNP Suite applications run on an SQL database server typically located at the customer institute. In addition to the data management software from Biocomputing Platforms Ltd, the system consists of the following components:

- An intranet or internet database and application server setup with one or more servers
- RED HAT® Enterprise Linux® operating system
- IBM® DB2® Universal Database™ relational database software

BC|GENE and BC|SNP Suite solutions can be used with web browsers of Windows®, Mac® and Unix® workstations. The connection to the server is encrypted using the SSL protocol.

Biocomputing Platforms Ltd is an IBM® Advanced Business Partner™, an Affymetrix® GeneChip-compatible™ company and belongs to the Illumina® Connect™ partnership program.



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