Bioinformatics tools for the processing, integration, analysis and interpretation of omics data

DESCRIPTION OF THE TECHNOLOGY

The concept of omics sciences includes disciplines such as genomics, proteomics, and metabolomics. All of them contribute great advances in the basic knowledge of biological research and also imply a great development in the field of the analysis of the cellular functionality and in its biotechnological applications.

Scientists from the CIPF develop different research programs and bioinformatics tools that, based on the management, analysis and interpretation of omics data, allow the discovery of new markers for the diagnosis and, the development of new therapies and decision making to make an individualized prescription for each patient.

Applications include patient's sequencing through its genomic information in order to identify variants in its genome that are associated with an accurate diagnosis and an appropriate treatment. All the information processed is stored in a database, giving way to a process of permanent feedback.

Another application developed aims to transform data resulting from measurements of mutations or genomic activity with cellular function, to relate directly to the phenotype. This process is performed through the use of maps that, relating them to each other, show the cellular functions.

Software such as Babelomics, Genome Maps, Team, StategraEMS or Paintomics are some of the developed translational tools that allow direct connection of research with clinical medicine and the development of new therapies.

MARKET APPLICATION SECTORS

Companies in the pharmaceutical and biotechnology sectors developing new diagnostics methods and new personalized therapies.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

The lack of adequate bioinformatics tools for omics data processing limits the widespread use of massive sequencing and other high throughput analysis technologies. The CIPF provides the know-how, computational capacity and bioinformatics tools in order to process, integrate, analyze and interpret such data types in a wide range of applications, both diagnostic and therapeutic.

CURRENT STATE OF DEVELOPMENT

Software tools are developed and available at http://bioinfo.cipf.es and http://bioinfo.cipf.es/aconesawp.

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INTELLECTUAL PROPERTY RIGHTS

Source code is available under several software licenses, mainly free licences such as Apache or GPL.

COLABORATION SOUGHT

Collaboration with health and pharmaceutical companies as well as research organizations interested in the application of technology for the design of clinical applications and the development of new personalized therapies.
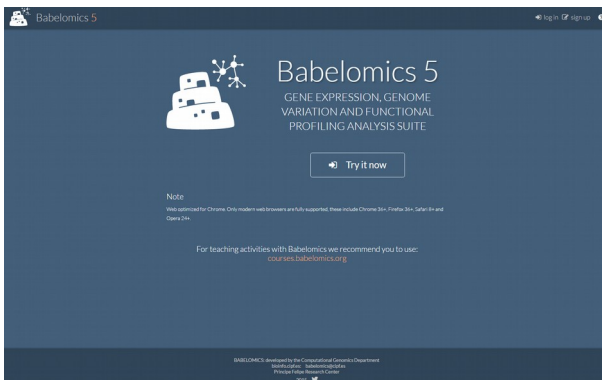
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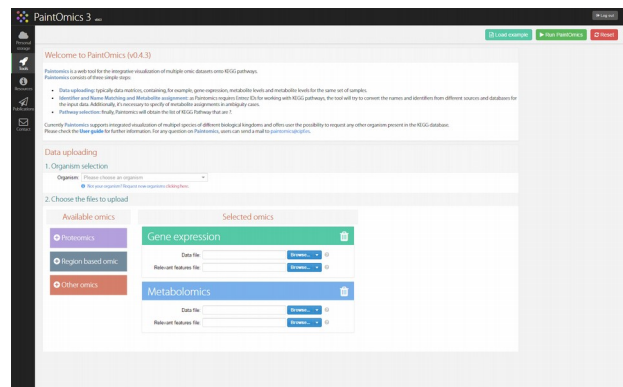

Image 1: Babelomics website

Image 2: Paintomics user interface

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