



Integromics invests in the optimization of computing performance for bioinformatics applications

Key collaboration with European experts of HPC to bring new big-data computing solutions into genomics

Granada and Madrid, Spain and Madison, WI, U.S., March 20, 2013 –

Integromics®, a market leader in IT solutions for life sciences in the field of genomics and proteomics, today announces that it has entered into a consortium for the research on new methods to process quickly and efficiently the large sets of data that are produced in genomics studies, typically based on Next Generation Sequencing technology, and their subsequent application in the early detection of drug reactions and allergies.

Information Technology is intimately coupled to research and modern society, providing solutions, speed and efficiency to perform tasks that until a few decades ago were, in practice, impossible to carry out. Every day, huge amounts of data are processed by high performance computers and office workstations, and more recently by mobile devices like tablets and smartphones. This is precisely the reality of genomics research where, for example, the sequence of a single human genome requires about 3 gigabytes (3000 megabytes) of storage. Following the emergence of these "big" datasets and the need to work with them, experts have begun to think about solutions to optimise the analysis and management of what has been called big-data or macro-data.

The Mr. SymBioMath collaboration, funded with more than 2.6 million euros by the Seventh Framework Programme for R & D of the European Union and coordinated by the Laboratory of Bioinformatics and Information Technology of the University of Malaga-UMA (Spain), has been designed to provide solutions to these needs through the synergy between Integromics (Spain), the Leibniz Supercomputing Centre in Munich-LRZ (Germany), the Johannes Kepler University of Linz-JKU (Austria), RISC Software (Austria) and Carlos Haya Hospital (Spain).

The Mr. SymBioMath project will result in new software applications and data analysis methods to accelerate genomics adoption in the clinical domain. At the level of computation, the research will be focused on two major challenges: transmission of large volumes of data and optimization of genetic comparison models and visualisations. JKU will be responsible for creating new models for comparative genomics, evolutionary distances between different organisms, and identification of correlations between genetic variation and phenotypic response of patients to particular treatments. The supercomputing infrastructure will be provided by the UMA and RISC. They will also develop applications to deliver, collect and display test information. LRZ will focus on the provisioning of enhanced visualisation and Virtual Reality hardware and software for the analysis of the interconnected huge genomic datasets in this project. The final implementation into commercial software will be done by Integromics. "Integromics will contribute from a commercial perspective", said Juan

Elvira, CTO of Integromics, "in the design of applications compatible with both computer and tablets-smartphones". At the clinical level, Miguel Blanco, Chief of Allergy Carlos Haya Hospital, explained that the project will use data available in the National Allergy Network to validate the software solutions.

The project leader, Dr. Oswaldo Trelles, highlighted that one of the strengths of this study is its focus on medical practice. "The solutions we seek", he says, "are targeted to a wide range of scientific applications, with personalized medicine certainly being one of them. Indeed, one of the objectives is to implement applications prototypes applied in real use case scenarios and to evaluate their potential for detecting from genomic data of allergic patients the possible adverse reactions to treatment".

The Mr. SymbioMath project represents an ideal opportunity for Integromics to reinforce its commitment to the development of software solutions for personalized medicine applied to the clinics. "This grant and collaboration with renowned computing experts will contribute to the democratisation of genomics, in particular through the usage of mobile devices", said Eduardo González Couto, CSO of Integromics.

For more information, visit <http://www.mrsymbiomath.eu/>

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About Integromics® S.L.

INTEGROMICS, S.L. provides IT solutions for life sciences in the areas of genomics and proteomics. In the post-genomic era, Integromics S.L. offers state-of-the-art products, services and training in two strategic areas: data management/integration and intelligent data analysis. The company has developed a network of collaborators both in industry and academia to provide complete technological solutions that will help its clients to achieve their goals. Integromics® S.L. was founded in 2002 and is based in Granada, Spain, with offices in Madrid, Spain. Integromics, Inc., a wholly owned subsidiary established in 2007, is based Madison, WI, USA.

For more information, visit <http://www.integromics.com/>