

## The EU Promotes Top Research In Biomedical Informatics To Support Individualised Medicine

The Commission of the European Union has funded with 4.85 million euros the Network of Excellence **INFOBIOMED 'Structuring European Biomedical Informatics to Support Individualised Healthcare'**. This pan-European project aims to develop tools and methods in Biomedical Informatics (BMI) and to create a stable and lasting structure for this discipline in Europe.

The idea of this project stems from the European **BIOINFOMED** study (5<sup>th</sup> Framework EU Programme), which was coordinated by the Institute of Health Carlos III, Madrid, Spain. This project carried out a prospective analysis of the relationships and synergy between Bioinformatics and Medical Informatics. The results of **BIOINFOMED** are reflected in the White Paper of the project, including a detailed R&D agenda for the advancement of BMI.

BMI is a discipline that is placed in the confluence of two disciplines that up to date have developed in an independent form, Bioinformatics and Medical Informatics. Although traditionally, Medical Informatics has been focused on the intersection between computer science and clinical medicine, and Bioinformatics has been predominantly centered on the intersection between computer science and biological research, the synergy between these two areas offers excellent opportunities for the advancement of personalised healthcare. The integration and exploitation of all the data and information generated at all levels by these disciplines requires a new synergetic approach that enables a two-way dialogue between them that comprises data, methods, technologies, tools and applications. BMI will help facilitate the translation of biological research results into clinical solutions.

Therefore the main purpose of **INFOBIOMED** Network is to enable the reinforcement of European BMI as an integrative discipline. BMI aims to create a common conceptual information space to further the discovery of novel diagnostic and therapeutic methods in the rapidly evolving arena of genomic medicine. The mission of BMI is to provide the technical and scientific infrastructure and knowledge to allow evidence-based, individualised healthcare using all relevant sources of information. Its implementation will help improve not only the treatment of diseases but also their diagnosis and prevention, also placing emphasis in public health and the reclassification of diseases. These foreseen benefits will improve health and quality of life of citizens and will probably have an effect on the efficiency of expenditure of the healthcare system.

### The Network

**INFOBIOMED** is a 3-year project that started on January 2004. It includes 16 European organizations from 10 different countries, Belgium, Denmark, Germany, Great Britain, Greece, Italy, The Netherlands, Portugal, Spain, and Sweden.

The Network brings together research groups with different background, each leader in its field of expertise creating a multidisciplinary team providing a good working environment and enabling the collaborative approach that supports the consolidation of BMI as a crucial scientific discipline for future healthcare. The network is composed by: Fundació IMIM, Institut Municipal d'Investigació Mèdica, Instituto de Salud Carlos III, Karolinska Institute, Edinburgh University, Custodix, Universidad Politécnica de Madrid, Universidad de Aveiro, Foundation for Research and Technology-Hellas, Danish Centre for Health Telematics, Informa S.r.l,

Heinrich-Heine-Universität Düsseldorf, Erasmus MC-University Medical Center Rotterdam, Hvidovre Hospital, Academisch Centrum Tandheelkunde Amsterdam, and AstraZeneca Research and Development. This project is coordinated by the Research Unit on Biomedical Informatics (GRIB) of the Institut Municipal d'Investigació Mèdica (IMIM) in Barcelona, Spain.

The Joint Programme of Activities in **INFOBIOMED** has been designed to first, cover all the significant aspects that are relevant to Medical Informatics and Bioinformatics and that have the potential to provide a space for synergy between them. These aspects are included in two separate blocks of activities, one for data interoperability and management and the other for methods, technologies and tools. Each block is divided in several activities that reflect the main different areas that require specific effort towards synergy: data interoperability and management and methods technologies and tools. This will require the integration and/or development of technologies that make possible this new approach to genomic medicine and preventive medicine. The first steps are to make a complete study of the state of the art and identification of the bottlenecks to then propose solutions for BMI.

The **INFOBIOMED** project applies a vertical as well as a horizontal approach to Biomedical Informatics, with the purpose of integrating data from all different areas, clinic, genetics, and environment thus giving a global perspective. This way all the knowledge gathered in the framework of these activities will be then tested into some 'vertical' pilot applications that aim to cover the whole range of information levels from molecule to population, from a practical perspective that works as test-bed for the integrative approach pursued. These pilots will allow to analyse the impact of BMI in key specific fields with the aim of investigating and knowing the requirements that these fields impose to BMI. Therefore, the application pilots intend to create a bi-directional dialogue between BMI and other health-related disciplines where BMI is used, in order to prevent the isolation of scientists of different disciplines and to foster the creation of a solid, durable scientific community. The four areas covered are pharmainformatics, genomics and microbiology, genomics and chronic inflammation, and genomics and colon cancer.