



SYNSYS

Synaptic Systems: dissecting brain function in health and disease
EC Funding: 10.739.837 €
<http://www.synsys.eu/>

SYSCILIA

A Systems biology approach to dissect cilia function and its disruption in human genetic disease
EC Funding: 11.069.083 €
<http://syscilia.org/>

SYSTEMTB

Systems biology of Mycobacterium tuberculosis
EC Funding: 10.562.601 €

SYSCOL

Systems biology of Colorectal Cancer
UNDER NEGOTIATION
Indicative EC Funding: 11.999.996 €

MODHEP

Systems biology of liver cancer: an integrative genomic-epigenomic approach
UNDER NEGOTIATION
Indicative EC Funding: 11.936.899 €

EURO-MOTOR

European multidisciplinary ALS network identification to cure motor neuron degeneration
UNDER NEGOTIATION
Indicative EC Funding: 8.998.359 €

ASSET

Analysing and Striking the Sensitivities of Embryonal Tumours
UNDER NEGOTIATION
Indicative EC Funding: 11.999.157 €

MULTIMOD

Multi-layer network modules to identify markers for personalized medication in complex diseases
EC Funding: 2.525.888 €
<http://www.multimod-project.eu/>

TRIEME

Systems-Level, Multi-layer Understanding of Cellular Responses to Ionizing Radiation
EC Funding: 2.928.426 €
<http://www.trieme.tau.ac.il/>

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FP6 (2002 - 2006): <http://cordis.europa.eu/fp6/projects.htm>

European Commission publication in Systems biology
ftp://ftp.cordis.europa.eu/pub/fp7/docs/fungen-book_en.pdf

Workshops on Systems biology
http://ec.europa.eu/research/health/past-events_en.html

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EU collaborative research in Systems biology

New perspectives
under FP6 – FP7

EU ACTIVITIES IN SYSTEMS BIOLOGY

With the rise of genomics and the accumulation of large amounts of data, a new systems-based approach to biology has emerged. Researchers are increasingly realising that our bodies cannot be subdivided down into independent components, but rather, genes, proteins, cells and organs interact with each other and the environment in complex ways. Systems biology aims to shed new light on these interactions by integrating data from different disciplines into biological models with the power of computer science, mathematics or engineering for the holistic understanding of health and disease.

Between 2004-2010, the European Commission's Framework Programmes FP6 /FP7 through the Health cooperation theme, have supported with over EUR 400 million, more than 60 collaborative research projects in the area of Systems biology and its applications to medical questions.

FROM SYSTEMS BIOLOGY TO SYSTEMS MEDICINE

Despite major technological advances in the biomedical field, there are still obstacles that separate Systems biology from medical applications.

Systems medicine is the application of Systems biology approaches to medical research and medical practice.

Its objective is to integrate a variety of biological/medical data at all relevant levels of cellular organization using the power of computational and mathematical modelling, to enable understanding of the pathophysiological mechanisms, prognosis, diagnosis and treatment of disease.

The major challenge for the future is how Systems biology can contribute to changing the medical paradigm in order to build the foundation for a prospective medicine that will be predictive, personalized, preventive and participatory.

SOME EXAMPLES OF FP7 FUNDED SYSTEMS BIOLOGY COLLABORATIVE PROJECTS

APO-SYS
Apoptosis Systems biology applied to cancer and AIDS. An integrated approach of experimental biology, data mining, mathematical modelling, biostatistics, systems engineering and molecular medicine
EC Funding: 11.000.000 €
<http://www.apo-sys.eu/>

CANCERSYS
Mathematical modelling of beta-catenin and ras signalling in liver and its impact on proliferation, tissue organization and formation of hepatocellular carcinomas
EC Funding: 2.992.024 €
<http://www.ifado.de/cancersys/>

SYBILLA
Systems Biology of T-cell Activation in Health and Disease
EC Funding: 11.100.000 €
http://www.sybilla-t-cell.de/simple_layout/content.htm

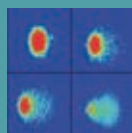
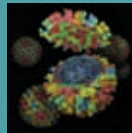
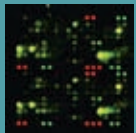
PATHOSYS
New Algorithms for Host Pathogen Systems Biology
UNDER NEGOTIATION
Indicative EC Funding: 2.968.825 €

SYBOSS
Systems Biology of Stem Cells and Reprogramming
EC Funding: 10.530.000 €

The Multidisciplinary nature of Systems biology

Multidisciplinary approaches:

- Modern Biology (bioinformatics, genomics, proteomics, transcriptomics, metabolomics...)
- Engineering sciences (tech. dev.)
- Mathematics and Computational modelling
- Clinical research/ Medical research



in a holistic approach to address complex biological systems in health and disease

