

New Algorithms for Host Pathogen Systems Biology

Fact Sheet

Project Information

SYSPATHO

Grant agreement ID: 260429

Status
Closed project


Start date
1 October 2010

End date
31 March 2015

Funded under
FP7-HEALTH

Overall budget
€ 3 882 716,41

EU contribution
€ 2 942 424,75

Coordinated by
RUPRECHT-KARLS-
UNIVERSITAET HEIDELBERG
 Germany

Objective

SYSPATHO focuses on the development of novel and generally applicable mathematical methods and algorithms for systems biology. These methods and algorithms will be applied to study the complex interactions of hepatitis C virus (HCV), a human-pathogenic virus of high medical relevance, with its host at the systems level. Using a multidisciplinary, integrative approach, PATHOSYS will (a) develop methods to analyze and integrate a wide variety of data from wet lab experiments, databases and biological literature, (b) develop and apply machine learning tools to reconstruct and study intracellular interaction networks from experimental data, (c) develop new and improve existing algorithms and mathematical methods for bottom-up modelling, to fit models to data, and to analyze the dynamic behaviour of models (d) generate new experimental data to gain novel insights into hepatitis C virus host interactions, and (e) use the newly developed methods and data to model and analyze HCV-host interactions at the systems level. Guided by biological data, PATHOSYS focuses on the design of novel algorithms

and mathematical methods for systems biology, with the aim to provide generally applicable tools to elucidate biological processes. Based on developed models and using systems analysis, PATHOSYS will elucidate virus host interactions of Hepatitis C virus at an unprecedented level. As a direct spin-off, models and analysis methods developed in PATHOSYS will lead to the identification of new candidate host cell target genes applicable for the design of novel anti-viral drugs against hepatitis C. Targeting of host cell factors will reduce the likelihood for the development of therapy resistance and increase the chance for broad-spectrum antivirals. Inclusion of two SME partners will ensure exploitation of results generated in PATHOSYS and their transfer into industrial and pharmaceutical applications, thus strengthening economy and health care system in Europe.

Field of science

/natural sciences/computer and information sciences/artificial intelligence/machine learning

Programme(s)

Topic(s)

Call for proposal

FP7-HEALTH-2010-single-stage

Funding Scheme

CP-FP-SICA - Small/medium-scale focused research project for specific cooperation actions dedicated to international cooperation partner countries(SICA)

Coordinator



RUPRECHT-KARLS-UNIVERSITAET HEIDELBERG

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[Website](#) 

Administrative Contact

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Activity type

**Higher or Secondary
Education Establishments**

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EU contribution

€ 729 378,53

Participants (10)



UNIVERSITÄTSKLINIKUM HEIDELBERG

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EU contribution

€ 449 552,06

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Activity type

Research Organisations

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EU contribution

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PETER THE GREAT SAINT PETERSBURG POLYTECHNIC UNIVERSITY

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SOFTWARE SYSTEMS-PREDICTING BIOLOGY OOO

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Activity type

**Private for-profit entities
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Cyprus

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Israel

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TECHNISCHE UNIVERSITAET DRESDEN

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