



SYSPATHO

Project reference: 260429

Funded under: [FP7-HEALTH](#)

New Algorithms for Host Pathogen Systems Biology

From 2010-10-01 to 2015-03-31, ongoing project

Project details

Total cost: EUR 3 882 716,41	Topic(s): <ul style="list-style-type: none">HEALTH.2010.2.1.2-3 - Developing new and improving existing mathematical algorithms for systems biology. FP7-HEALTH-2010-single-stage
EU contribution: EUR 2 942 424,75	Call for proposal: FP7-HEALTH-2010-single-stage
Coordinated in: Germany	Funding scheme: CP-FP-SICA - Small/medium-scale focused research project for specific cooperation actions dedicated to international cooperation partner countries(SICA)

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."

Related information

Result In Brief

- [Advanced algorithms predict host-pathogen interactions](#)

Report Summaries

- [Periodic Report Summary 2 - SYSPATHO \(New Algorithms for Host Pathogen Systems Biology\)](#)
- [Periodic Report Summary - SYSPATHO \(New algorithms for host pathogen systems biology\)](#)

Documents and Publications

- [Periodic Report - SYSPATHO \(New algorithms for host pathogen systems biology\)](#)

Coordinator

RUPRECHT-KARLS-UNIVERSITAET HEIDELBERG
SEMINARSTRASSE 2
HEIDELBERG, Germany

Germany

EU contribution: EUR 729 378,5

Administrative contact: Roland Eils

Tel.: +49 6221 5451290

Fax: +49 6221 5451488

[E-mail](#)

Participants

UNIVERSITAETSKLINIKUM HEIDELBERG
IM NEUENHEIMER FELD 672
HEIDELBERG, Germany

Germany

EU contribution: EUR 449 552,06

Administrative contact: Thorsten Brietz

Tel.: +49 6221 567086

Fax: +49 6221 565460

[E-mail](#)

INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE (INSERM)
101 Rue de Tolbiac
PARIS, France

France

EU contribution: EUR 513 600

Administrative contact: Evelyne Bertino

Tel.: +33 4 72 13 88 58

Fax: +33 4 72 13 88 01

[E-mail](#)

"The Establishment of the Russian Academy of Sciences Institute of Cytology and Genetics,
Siberian Branch of the Russian Academy of Sciences"

Russia

Lavrentyeva 10

Novosibirsk, Russia

EU contribution: EUR 134 131,97

Administrative contact: Nikolay Kolchanov

Tel.: +7 383 3333468

Fax: +7 383 3331278

[E-mail](#)

ST. PETERSBURG STATE POLYTECHNICAL UNIVERSITY
Polytechnicheskaja street 29
SAINT PETERSBURG, Russia

Russia

EU contribution: EUR 181 440

Administrative contact: Maria Samsonova

Tel.: +7 812 5962831

Fax: +7 812 5962831

[E-mail](#)

MIDDLE EAST TECHNICAL UNIVERSITY
DUMLUPINAR BULVARI 1
ANKARA, Turkey

Turkey

EU contribution: EUR 59 825,08

Administrative contact: Tolga Can

Tel.: +90 312 210 5537

Fax: +90 312 210 5544

[E-mail](#)

BAHCESEHIR UNIVERSITESI FOUNDATION
Ciragan Cad Osmanpasa Mektebisokak 4-6
Besiktas Istanbul, Turkey

Turkey

EU contribution: EUR 34 400,42

Administrative contact: Sureyya Ozogur-Akyuz

Tel.: +905443690810

Fax: +902123810300

[E-mail](#)

SOFTWARE SYSTEMS-PREDICTING BIOLOGY OOO
Lavrentieva pr. 10
Novosibirsk, Russia

Russia

EU contribution: EUR 211 405,08

Administrative contact: Vladimir Ivanisenko

Tel.: +73833332971

Fax: +73833331278

[E-mail](#)

NOVAMECHANICS LIMITED
JOHN KENNEDY AVENUE 62-64
LEFKOSIA, Cyprus

Cyprus

EU contribution: EUR 307 200

Administrative contact: Antreas Afantitis

Tel.: +35799048039

Fax: +35722347772

[E-mail](#)

ORT BRAUDE COLLEGE
Snunit street 51
KARMIEL, Israel

Israel

EU contribution: EUR 37 872

Administrative contact: Zeev(Vladimir) Vokovich

Tel.: +97249901994

Fax: +97249901852

[E-mail](#)

TECHNISCHE UNIVERSITAET DRESDEN

Germany

HELMHOLTZSTRASSE 10
DRESDEN, Germany

EU contribution: EUR 283 619,62

Administrative contact: Christin Kusche

Tel.: +49 351 463 42185

Fax: +49 351 463 39742

[E-mail](#)

Subjects

[Medical biotechnology](#)

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