Consortium

Institute of Communication and Computer Systems, Greece
National Technical University of Athens
In Silico Oncology Group
Research Professor Dr Georgios Stamatakos

Saarland University, Germany
Department of Pediatric Oncology and Haematology
Prof. Norbert Graf

Katholieke Universiteit Leuven, Belgium
Department of Pediatric Hemato-Oncology and Neuro-Oncology
Prof. Stefan Van Gool

University of Bedfordshire, United Kingdom
Department of Computer Science and Technology
Prof. Feng Dong

The University of Sheffield, United Kingdom
Department of Mechanical Engineering
Prof. Marco Viceconti

Foundation for Research and Technology Hellas, Greece
Institute of Computer Science / Computational Medicine Laboratory
Dr Kostas Marias

Gottfried Wilhelm Leibniz University Hannover, Germany
Institute of Legal Informatics
Prof. Nikolaus Forgó

University of Pennsylvania, United States of America
Department of Engineering
Dr Ravi Radhakrishnan

University of Oxford, United Kingdom
Mathematical Institute
Prof. Helen Byrne

University of Turin, Italy
Department of Neuroscience
Prof. Caterina Guiot

University of Bern, Switzerland
Institute for Surgical Technology and Biomechanics
Dr Philippe Büchler

Custodix NV, Belgium
Brecht Claerhout

Philips Electronics Nederland B.V., The Netherlands
Philips Research Europe / Healthcare Information Management
Dr Anca Bucur

University College London, United Kingdom
Centre for Health Informatics and Multiprofessional Education
Dr Bernard de Bono

CINECA, Italy
BioComputing Competence Centre
Dr Debora Testi

Technological Educational Institute of Crete, Greece
Department of Applied Informatics and Multimedia
Prof. Manolis Tsiknakis

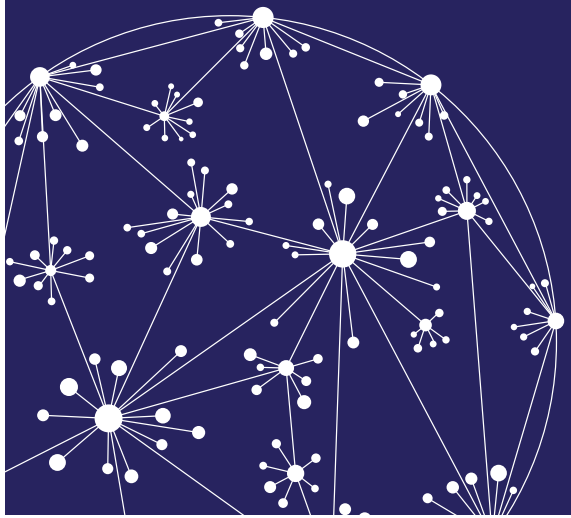
European Research and Project Office GmbH (Eurice), Germany
Corinna Hahn

CHIC

Computational Horizons in Cancer

Developing Meta- and Hyper-Multiscale Models and Repositories for In Silico Oncology

www.chic-vph.eu



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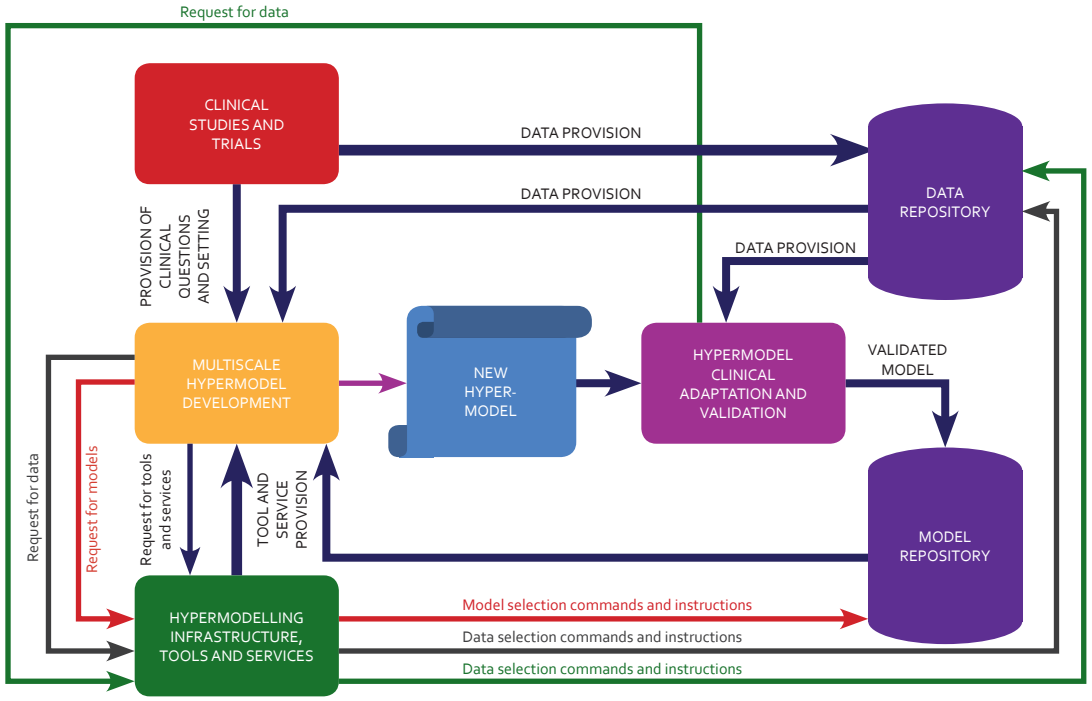
Project Summary

Developing robust, reproducible, interoperable and collaborative hyper-models of diseases and normal physiology is a sine qua non necessity if rational, coherent and comprehensive exploitation of the invaluable information hidden within human multiscale biological data is envisaged.

Responding to this imperative in the context of both the broad Virtual Physiological Human (VPH) initiative and the paradigmatic cancer domain, the transatlantic project CHIC proposes the development of a suite of tools, services and secure infrastructure that will support accessibility and reusability of VPH mathematical and computational hypermodels. These will include a hypermodelling infrastructure consisting primarily of a hypermodelling editor and a hypermodelling execution environment, an infrastructure for semantic metadata management, a hypermodel repository, a hypermodel-driven clinical data repository, a distributed metadata repository and an in silico trial repository for the storage of executed simulation scenarios. Multiscale models and data will be semantically annotated using the ontological and annotating tools to be developed. An image processing and visualization toolkit as well as cloud and virtualization services will also be developed. The CHIC tools, services, infrastructure and repositories will provide the community with a collaborative interface for exchanging knowledge and sharing work in an effective and standardized way. A number of open source features and tools will enhance usability and accessibility.

In order to ensure clinical relevance and foster clinical acceptance of hypermodelling in the future, the whole endeavour will be driven by the clinical partners of the consortium. Cancer hypermodels to be collaboratively developed by the consortium cancer modellers will provide the framework and the testbed for the development of the CHIC technologies. Clinical adaptation and partial clinical validation of hypermodels and hypermodel oncosimulators will be undertaken.

Experimentation in silico is expected to serve as both a patient individualized treatment optimizer by using the patient's own multiscale data and a fundamental science based suggestion generator in designing the branches of new prospective clinical trials.



Duration
48 months (start date: April 2013)

Project Funding
10,582,000.00 €

Acronym
CHIC

Full Title
"Computational Horizons In Cancer (CHIC): Developing Meta- and Hyper-Multiscale Models and Repositories for In Silico Oncology"

Programme
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Coordinator
Institute of Communication and Computer Systems, National Technical University of Athens, In Silico Oncology Group
Research Professor Dr Georgios Stamatakos
Iroon Polytechniou 9
GR 15780 Zografos, Greece

Phone: +30 210 772 2287
Fax: +30 210 772 3557
E-mail: gestam@central.ntua.gr

Project Management
European Research and Project Office GmbH (Eurice)
Julia Petry
Science Park 1
66123 Saarbrücken, Germany

Phone: +49 681 9592 3364
Fax: +49 681 9592 3370
E-mail: j.petry@eurice.eu