

ACGT

Advancing Clinico-Genomic Clinical Trials on Cancer

ACGT aims to present the ‘next-step’ in cancer research and fill-in the technological gaps of clinical trials targeting two forms of cancer: breast cancer and *paediatric nephroblastoma*. **ACGT** will develop a Biomedical GRID infrastructure supporting seamless mediation services for sharing clinical and genomic expertise. It will help to identify quicker and more efficiently the characteristics that determine what form of treatment best suits which patient.

Objectives of the project

ACGT aims to provide researchers and patients with the best means and resources to fight cancer.

ACGT is working towards the rapid identification of cancer profiles and best treatments.

The **ACGT** project will:

- Define common standards of data storage at each level of investigation.

“ACGT hopes to trigger the emergence of latent clinico-genomic synergies to ensure faster diagnosis and more efficient therapy”

- Develop new ontologies for cross-referencing terms and their biological contexts.
- Implement a bio-medical GRID infrastructure offering seamless mediation services for sharing data and data-processing.

ACGT will therefore deliver a unifying infrastructure allowing cancer researchers to share their data and to benefit from the innovative informatics tools that are being developed by other researchers.



Project Description

The **ACGT** work plan relies on 3 core activities:

- **INTEGRATION.** Creation of advanced databases that combine clinical history; symptoms and signs; laboratory and histopathology; medical imaging; procedural and surgery results; and genetic data, taking into account standard clinical and genomic ontologies.
- **KNOWLEDGE GRID.** Development of Knowledge Grid infrastructures for the distributed mining and extraction of knowledge from data repositories offering information services in the domain of biomedical informatics and creating a highperforming computational environment to: (a) cope with the huge-amount of both clinical and genomic data; and (b) meet the computationally costly data processing needs.
- **CLINICAL TRIALS.** Design and implementation of specific clinico-genomic trials based on: (a) clear-cut research objectives for cancer-related clinical and genomic inquiries; (b) incorporation of the clinical-trials in an integrated GRID environment enriched with knowledge-discovery capabilities; and (c) interpretation of results into standardised clinical guidelines and protocols.

Scenario

Imagine that for selected cancer patients, biopsies are taken before, during and after treatment, made anonymous and the analyses stored promptly in an accessible fashion. Imagine also that the patient's data can readily be compared with those from other trials. And imagine that one can search clinical and other databases in hours rather than months.

Expected Results & Impacts

The completion of the Human Genome Project sparked the development of many new tools for current biomedical research.

The combination of clinical and genetic information to cure paediatric nephroblastoma cancer has resulted in up to 85% treatment success rate.

The **ACGT** project aims to develop a GRID platform to support and stimulate further exchanges of both clinic and genetic information, with a particular focus on breast cancer treatment. **ACGT** hopes to trigger the emergence of latent clinico-genomic synergies to ensure faster diagnosis and more efficient therapy.

In this perspective, the **ACGT** project will:

- Provide the advanced tools needed by biomedical scientific researchers in their daily lab or clinical work, so that they are properly equipped to “innovate”.
- Facilitate exchanges and interactions among clinical and genetic cancer researchers so they pool their expertise in identifying the best treatment for each and every patient.
- Allow discoveries made in laboratories to be quickly transferred to clinical management and treatment of patients. In former times, the discovery of diseases such as tuberculosis or diabetes did not immediately lead to therapies. In some cases, it took more than 60 years to improve treatment. New technologies such as insilico experimentation, Grid or data and text mining are contributing to reducing these periods of time.
- Contribute to the scientific development of new biomedical informatics approaches, where Europe is already leading the initiatives in the field, but strengthening the competitive efforts of industry to reach economic success.

Keywords:

Rapid Identification;
Integration Knowledge Grid;
Clinical Trials

A C G T

Advancing Clinico-Genomic Clinical Trials on Cancer

Project co-ordinator:
ERCIM EEIG

Contact person:

Remi Ronchaud

Tel: + 33 4 92 38 50 12

Fax: + 33 4 92 38 50 11

Email: remi.ronchaud@ercim.org

Website: <http://acgt.ercim.org>

Partners:

- ERCIM EEIG - Institut National de Recherche en Informatique et en Automatique - Healthgrid (FR)
- Foundation for Research and Technology Hellas - A. Persidis & SIA O.E. - University of Crete - Institute of Communications and Computer Systems (GR)
- University van Amsterdam - Philips Electronics Nederland B.V. (NL)
- Association Hospitaliere de Bruxelles – Centre Hospitalier Universitaire Bordet – Custodix - Facultes Universitaires Notre-Dame de la Paix (BE)
- Institut Suisse de Bioinformatique (CH)
- Lunds Universitet (SE)
- Universidad de Malaga - Universidad Politecnica de Madrid (ES)
- Fraunhofer-Gesellschaft zur Foerderung der angewandten Forschung - Unisersitaet Hannover - Unisersitaet des Saarland - Unisersitaet Hamburg (DE)
- Instytut Chemii Bioorganicznej pan w Poznaniu (PL)
- S.C. SIVCO ROMANIA SA (RO)
- The Chancellor, Masters and Scholars of the University of Oxford (UK)
- Hokkaido University (JP)
- Istituto Europeo di Oncologia s.r.l (IT)

Timetable: from 02/06 – to 01/10

Total cost: € 16.747.206

EC funding: € 11.887.000

Instrument: Integrated Project

Project Identifier:

IST-2004-026996