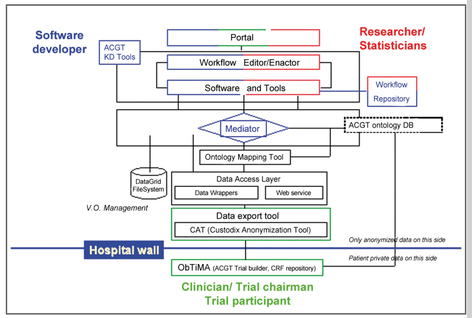
ACGT: A platform to facilitate clinico-genomic research on breast cancer

ACGT on Cancer — Advancing Clinico Genomic Trials

Information Society Technologies

ACGT is in line with ethical guidelines and data protection rules
PROJECT N° FP6-2005-IST-026996

What is ACGT?



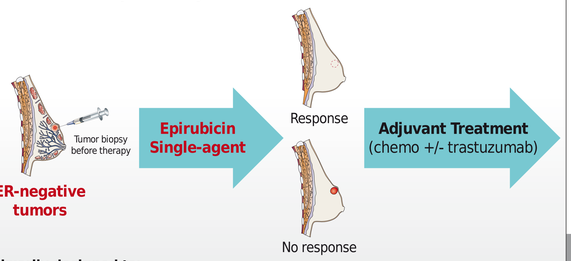
ACGT is an EU co-funded project that develops open-source, semantic and grid-based technologies in support of post genomic clinical trials in cancer research. It addresses clinicians, bio-researchers as well as software developers providing an open platform where novel and powerful services can be offered and put to use by practitioners in the field. ACGT focuses on the integration of multilevel biomedical data including clinical data with the ultimate objective to extract new knowledge for developing more individualized treatments for cancer patients.

The tools developed in ACGT address several target groups: clinicians, biostatisticians, software developers, consultants, patients and the general public. The needs of these end-user groups as well as the use of the platform itself are separated as shown in the figure above.

The two pilot trials

- *SIOP trial (Saarland University)*
  - Wilms tumor (pediatric nephroblastoma)
  - Identification of markers in serum that can be used as predictor of patient response to chemotherapy
  - Small amount of data, complex patient follow up
  - Test case for the ACGT trial builder (ObTiMA)
  - Test case for the Oncosimulator (In-silico prediction of tumor response to treatment)
- *TOP trial (Institut Jules Bordet)*
  - Breast carcinoma (ER-)
  - Assess patient clinical response to different strategies in neo-adjuvant treatment with epirubicin
  - Large data sets (expression microarray-based)
  - Test case for the ACGT anonymization and data mining pipeline

The TOP trial (N=149)

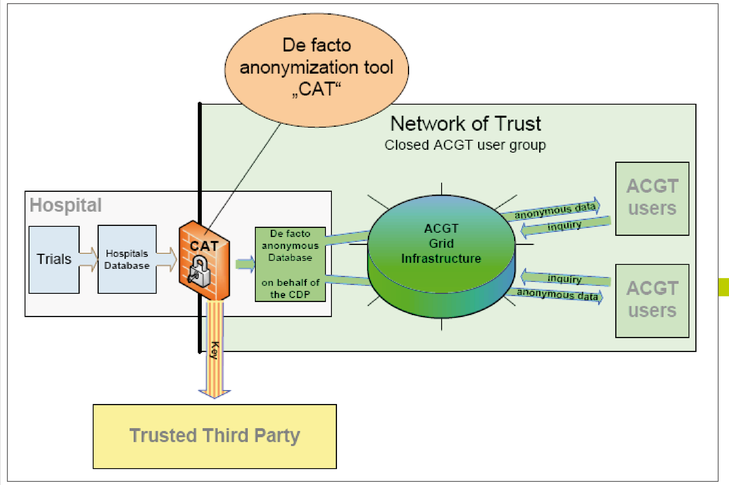


Primarily designed to:
1 - prospectively evaluate the predictive value of HER2 and TOP2A
2 - identify molecular markers of response/ resistance to anthracyclines

Ethical and Legal aspects : Center for Data Protection (CDP)

From a legal point of view, the ACGT project must enforce EC security and privacy policies on clinical trials. The primary aim of the ACGT Data Protection Framework is to create a Data Protection Architecture allowing to process anonymized data, assisting in broadening the scope of the European Data Protection Regulations onto clinical trials.

Center for Data Protection
CDP
www.privacypeople.org



ObTiMA: Ontology Based Trial Management for ACGT

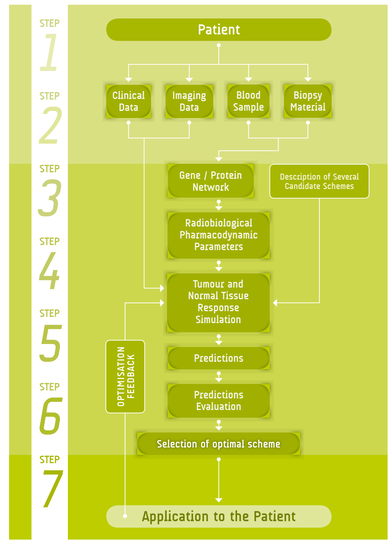
Data Management in post-genomic clinical trials is the process of collecting and validating clinical and genomic data with the goal to answer research questions and to preserve them for future scientific investigations. Comprehensive metadata describing the semantics of the data is needed to allow cross-trial analysis. Current clinical trial management systems lack sufficient metadata and are not semantically interoperable. ObTiMA is an application that allows trial chairmen to design their trial according to their needs and to integrate a clinical trial ontology into the design process.

Web: http://eu-acgt.org
Contact: remi.ronchaud@ercim.org
tsiknaki@ics.forth.gr

ACGT IS AN INTEGRATED PROJECT FUNDED BY THE EUROPEAN COMISSION
design: healthgrid.org

Oncosimulator:

The ONCOSIMULATOR is at the same time a concept of multilevel integrative cancer and (treatment affected) normal tissue biology, an algorithmic construct and a software system which aims at supporting the clinician in the process of optimizing cancer treatment by performing individualized in silico experiments.



The ACGT workflow environment:

The ACGT data mining environment is accessible from a secured web portal which is running in standard web browsers .

Bioinformaticians and biostatisticians can construct complex and reusable analysis workflows with a number of powerful and user-friendly tools available in the portal.