Cancer Core Europe

Paving the way for a multi-site virtual European Cancer Institute

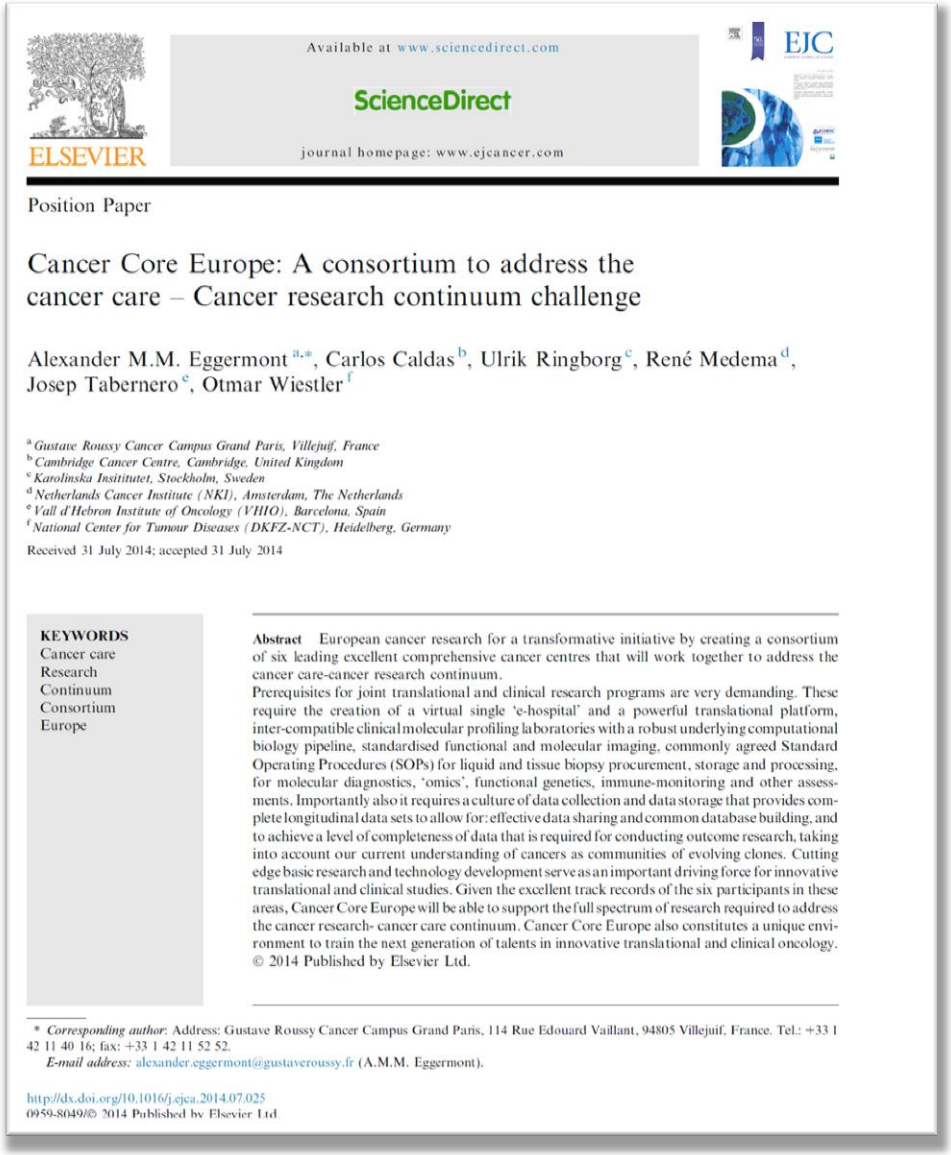
From New Treatments (POC-studies) to Outcome Research

SUSTAINABILITY

- **FP6 EUROCAN+**
  - inventory of barriers, fragmentation
  - Recommendation: create TR Platform
- **FP7 EUROCAN TRANSLATION RESEARCH PLATFORM**
  - 26 partners, 16 wps
  - Recommendation: create Cancer Core Europe
- **CREATION CANCER CORE EUROPE**
  - Autofinanced
  - Sustainability / Core / Expand later

6 Comprehensive Cancer Centers

Cancer Core Europe



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Position Paper

Cancer Core Europe: A consortium to address the cancer care – Cancer research continuum challenge

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Abstract European cancer research for a transformative initiative by creating a consortium of six leading excellent comprehensive cancer centres that will work together to address the cancer care-cancer research continuum.

Prerequisites for joint translational and clinical research programs are very demanding. These require the creation of a virtual single 'e-hospital' and a powerful translational platform, inter-compatible clinical molecular profiling laboratories with a robust underlying computational biology pipeline, standardised functional and molecular imaging, commonly agreed Standard Operating Procedures (SOPs) for liquid and tissue biopsy procurement, storage and processing, for molecular diagnostics, 'omics', functional genetics, immune-monitoring and other assessments. Importantly also it requires a culture of data collection and data storage that provides complete longitudinal data sets to allow for: effective data sharing and common database building, and to achieve a level of completeness of data that is required for conducting outcome research, taking into account our current understanding of cancers as communities of evolving clones. Cutting edge basic research and technology development serve as an important driving force for innovative translational and clinical studies. Given the excellent track records of the six participants in these areas, Cancer Core Europe will be able to support the full spectrum of research required to address the cancer research- cancer care continuum. Cancer Core Europe also constitutes a unique environment to train the next generation of talents in innovative translational and clinical oncology.

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CAMBRIDGE Cancer CENTRE

dkfz. GERMAN CANCER RESEARCH CENTER IN THE HELMHOLTZ ASSOCIATION

GUSTAVE ROUSSY CANCER CAMPUS GRAND PARIS

Karolinska Institutet

NETHERLANDS CANCER INSTITUTE ANTONI VAN LEEUWENHOEK

VHIO VALL D'HEBRON Institut d'Oncologia

Objectives

- **Transformative initiative to create sustainable, integrated research-care capabilities**

create a multi-site European Cancer Institute

- carry out joint translational and clinical research
- conduct next-generation clinical trials
- develop personalized cancer medicine
- establish standardized academic diagnostic platforms
- create large shared databases
- perform outcomes research

Prerequisites to deal with inherent complexity

- High volume clinical research activity
- Highly developed research infrastructures
- Cutting-edge track records
- **Complementarity**
  - Basic Research Infrastructure
  - Translational Research Culture
  - Clinical Research Programs
    - Early Clinical Trials Culture
    - Investigator Initiated Trials Culture

Critical Mass

- **Clinical Activity**
  - 60,000 new patients/yr
  - 250,000 - 300,000 patients treated/yr
  - > 1.2 Million consultations

- **Common IT system to**
  - Share Clinical Databases
  - Share Research Databases
  - Share Research Projects

One Portal

- **Create Virtual e-Cancer Institute**
  - Consortium transformed into Association
  - **Legal Entity**
  - **One Portal** for Clinical Trials
  - Attractive partner for Pharma/Biotech

Common SOPs and Platforms

- Tissue procurement and biobanking SOPs
- **Common validated (400 genes) molecular diagnostic platform**
- **Common immunomonitoring platform**
- **Functional imaging platform**
- Common bioinformatic pipelines
- SAP multi-language unstructured to structured data classifying system

Cancer Core Europe

From Early Clinical Trials to Outcomes Research

- Infrastructure
- Culture
- Critical Mass

Cancer Core Europe
6 Working Groups

1 Data Sharing
2 Common Diagnostic Platforms (400 genes / immunomonitoring)
3 Functional Imaging
4 Preclinical development – Early Clinical trials
    4a Molecular Medicine
    4b Immunotherapy
5 Databases- Outcomes Research
6 Training

Task Force #1
Data sharing via common IT platform

- Create platform allowing the exchange of data (genomic, imaging, clinical, treatment outcomes) across centers
- Use common standards to ensure data interoperability
- Implement mandatory metadata directory
- First step will incorporate diseases where using the data for discovery-based research can make an impact

Task Force #2
Molecular Diagnostics Platform

- Common panel of genes available in 6 centers
- Common pipelines for alignment, variant calling, and analysis
- Circulating information on molecularly defined clinical groups to decide on appropriate therapies
- Common controls ensure genomic data is high-quality and uniform

Task Force #3
Functional Imaging

- Incorporate functional imaging into data sharing platform
- Goal 1 - Develop predictive modeling
- Goal 2 - Identify features of response to treatment with immune checkpoint inhibitors
  - Early response
  - Acquired resistance

Task Force #4
Clinical Trials/Omics

- Evaluate whether matching treatment to molecular abnormalities induces antitumor activity
- Profile patients according to molecular signatures and pathway alterations
- Evaluate tumor heterogeneity, sensitivity, and resistance
- Launch Basket trials
- Follow-up patients using biopsies and cfDNA
- Use innovative statistical designs — Cancer Core Europe expertise in biostatistics will be key

Task Force #4b
Immunotherapy

- Cancer Core Europe strengths:
  - T cells, T cell repertoire, NK cells, Adoptive Cell Therapies
  - Microenvironment – dendritic, vasculature
  - Immunomonitoring platforms
  - **INTEGRATE Genomics**: protein structure and neoantigens, etc.
- Above areas will be incorporated into new clinical trials
- Patient samples to be tested in different institutions according to their expertise after defining Cancer Core Europe immune biomarker panel

Task Force #5
Prospective Fully Anotated Databases: basis for outcome research

- Critical Mass
- Shared / Prospective
- Fully clinically anotated
- Research data anotated

Task Force #6
Training and Mobility

- Molecular Medicine Autumn School
- Mobility grant inter-laboratory
- etc

Funding

1) **Funding provided by the 6 members**

2) **Successful grant applications**
   A) **EIT Health - KIC Innolife**
      » PCM and Biomarkers
   B) **Transcan - EU projects**
      - Heterogeneity in breast and ovarian cancers
      - Triple negative breast cancer
      - Hematological cancers
   C) **ANR grant**
      - Support coordination inside Cancer Core Europe

3) **Future aims: IMI2, H2020**

Cancer Core Europe Trials

- **MOLECULAR MEDECIN**
  - POSEIDON trial
    - (PI3Kinhibitors in Luminal Breast Cancer)
  - **BASKET OF BASKETS**
    - Across tumor types
- **From Preclinical into Phase I**
    - **Trail inhibitor**
- **IMMUNOTHERAPY**
  - SABR-PDL1 trial
    - Stereotaxic Radiotherapy + antiPDL1 metastatic cancers
  - ILSI
    - (CRC Livermets: oxaliplatin (iimunogenic cell death inducer) followed by intralesional checkpoint inhibitors + TLR4inh)

INCLUSIVENESS

- First - build core centers, then core structures, then open up for expansion
- Exclusive at first, with goal ***to become inclusive across Europe***
- Precursor for virtual ECI

Objective: Precursor of ECI