



COMPETENCE CENTRE FOR CANCER RESEARCH



European Union  
Regional Development Fund



Investing in your future

# Competence Centre for Cancer Research

Toivo Maimets, PhD

Scientific consultant, Head of Therapeutics Development

Partner representative – University of Tartu

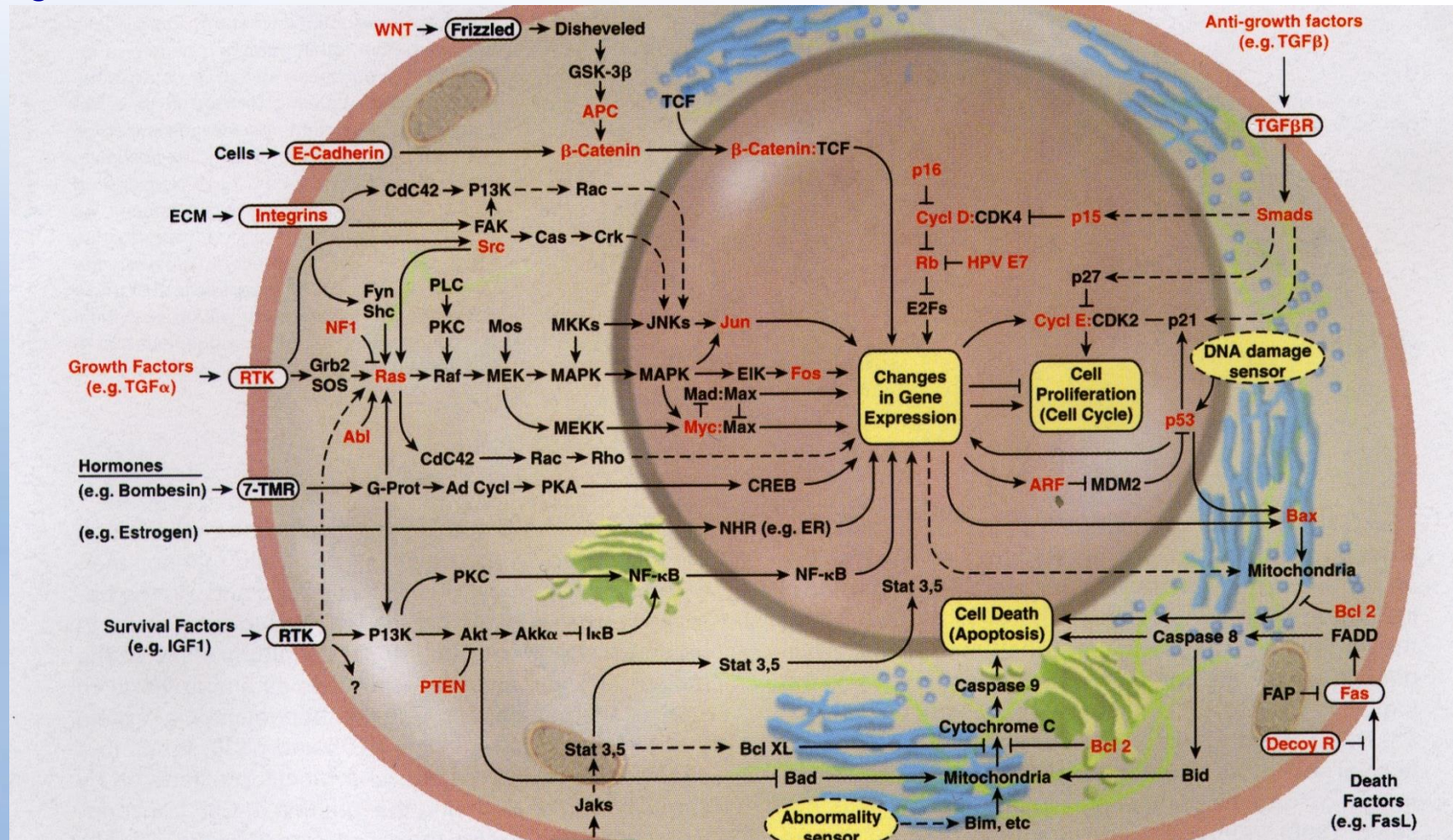
Tartu

November 28

2014

# Cancer

- One of the most common causes of death in the developed countries
- Cancer is the common name of more than 250 different diseases in molecular biological sense





COMPETENCE CENTRE FOR CANCER RESEARCH

# Cancer

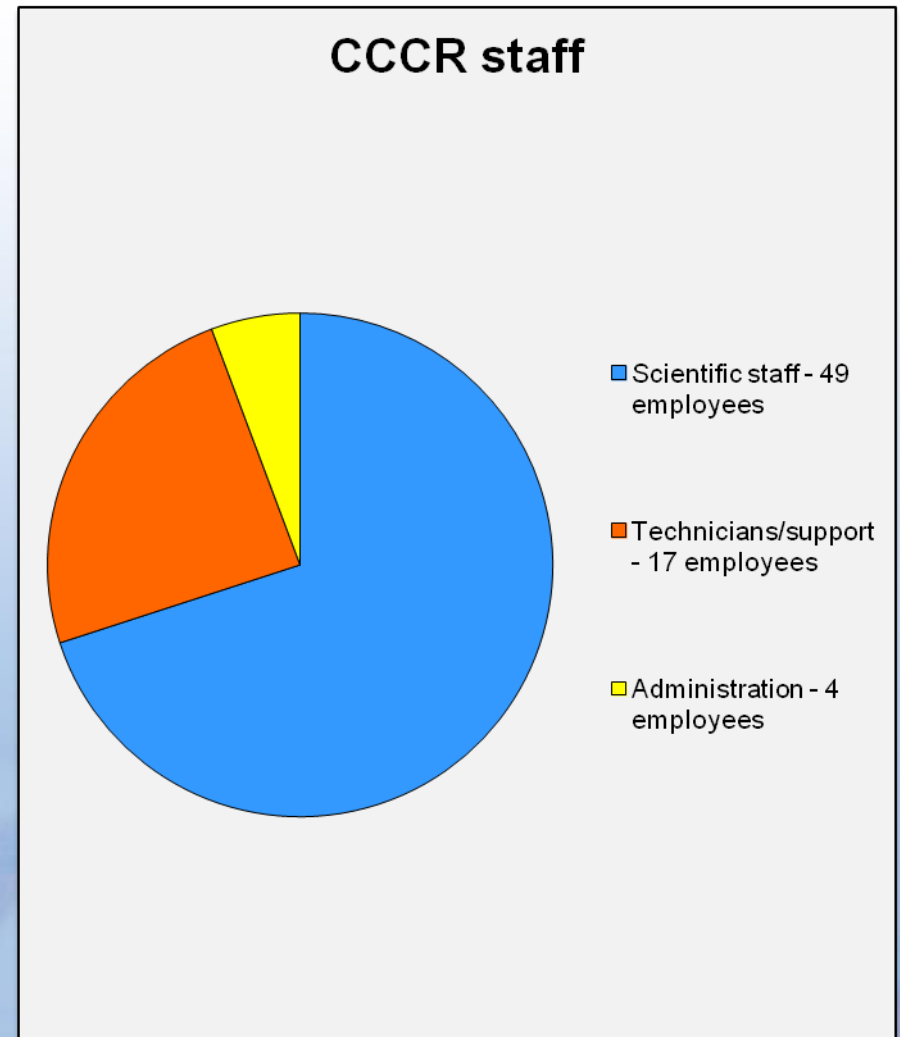
- Traditionally top-level oncobiology and oncology in Estonia
- Full oncology patient reports since 1947
- Cancer register information since 1968



COMPETENCE CENTRE FOR CANCER RESEARCH

# CCCR in brief

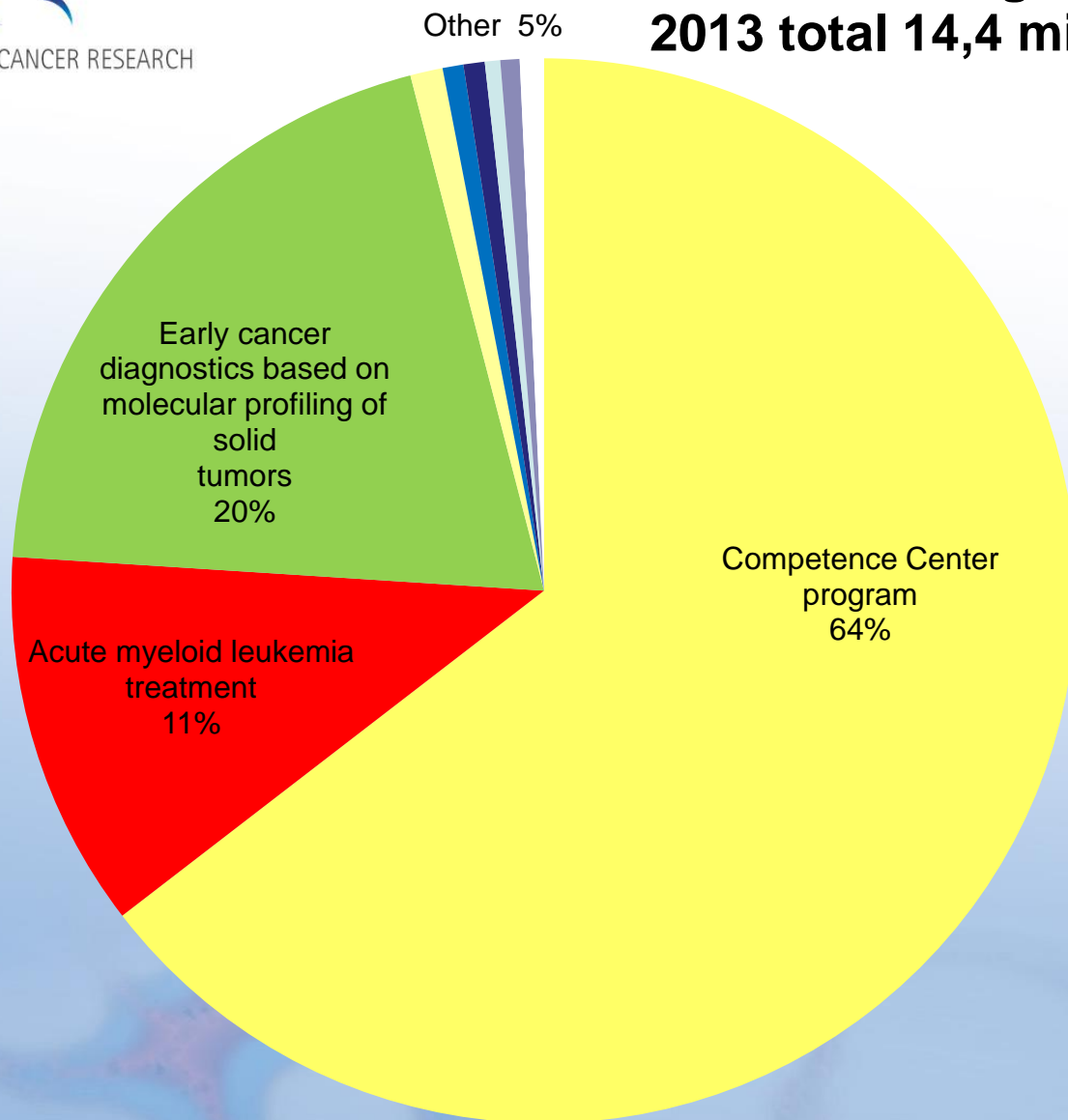
- Established in 2005
- Limited company
- 7 shareholders, among them 1 university, 1 hospital and 6 companies
- 14 partners
- Budget in 2013: 2.7 MEUR
- 2 development orientations and 10 projects under CC program





COMPETENCE CENTRE FOR CANCER RESEARCH

## CCCR budget for 2009-2013 total 14,4 million EUR





COMPETENCE CENTRE FOR CANCER RESEARCH

# Shareholders

- Tallinn University of Technologies
- North Estonian Medical Centre
- IBCC Holding Ltd.
- Cemines Estonia Ltd.
- TFS International AB
- Kevelt Ltd.
- Cambrex Tallinn Ltd.



COMPETENCE CENTRE FOR CANCER RESEARCH

# Consortium Partners

- Tartu University
- Protobios Ltd.
- EPhaG Ltd.
- Genecode Ltd.
- Quattromed HTI Ltd.
- IBGenetics Ltd.
- Pharmidea Ltd.



COMPETENCE CENTRE FOR CANCER RESEARCH

# Management

- Council - each partner has a possibility to nominate a representative
- Board – Riin Ehin
- Head of therapeutics development– PhD Toivo Maimets
- Head of diagnostics development - PhD Toomas Neuman
- 10 project managers
- International Scientific Advisory Board





COMPETENCE CENTRE FOR CANCER RESEARCH

# Mission

To save lives and increase the quality of life

through innovative solutions

in the development of cancer drugs and diagnostics



COMPETENCE CENTRE FOR CANCER RESEARCH

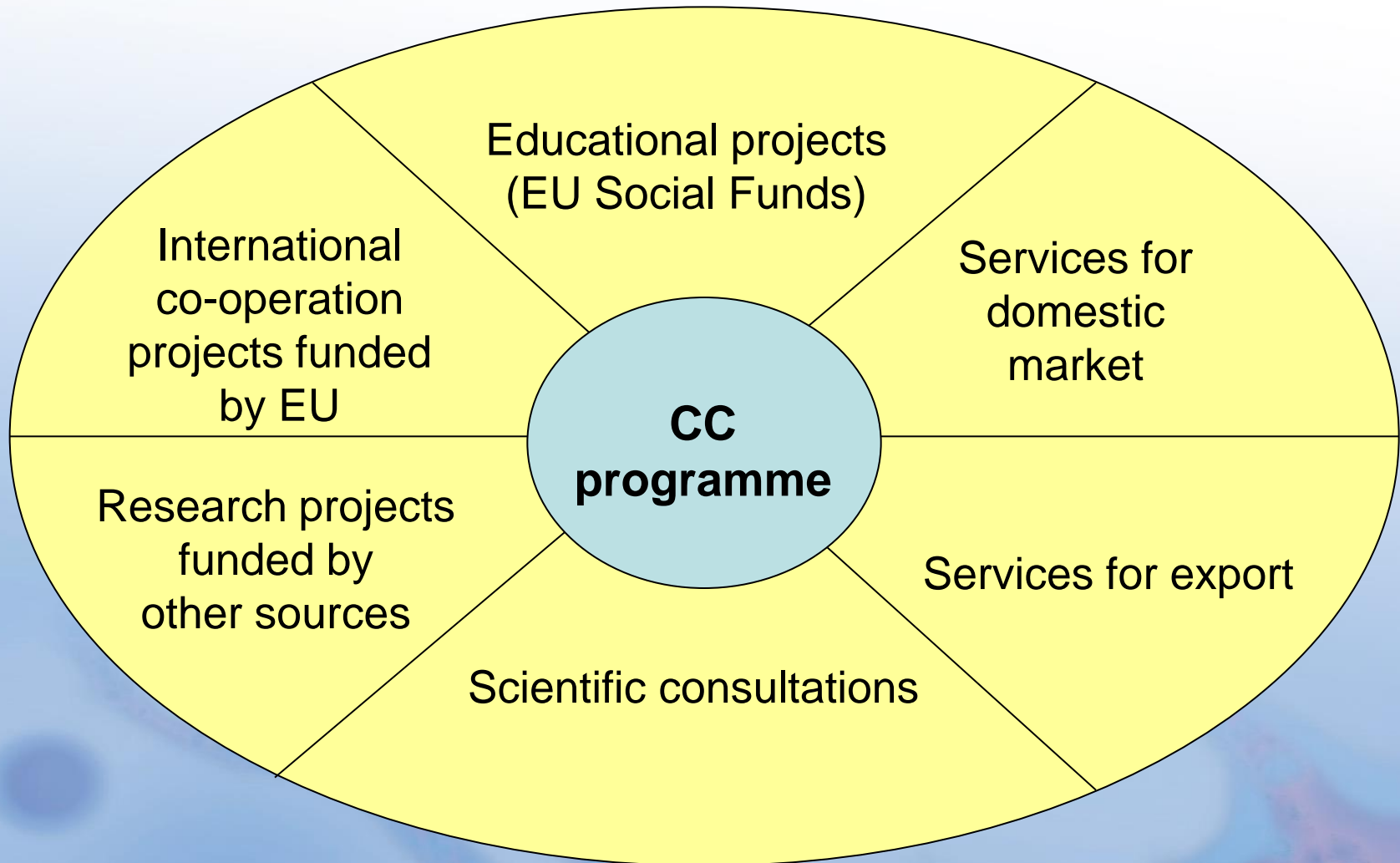
# Vision

- Novel solutions for cancer diagnostics and treatment
- New cancer drugs developed in Estonia
- Substantial revenues stem from out-licencing of IP and international co-operation



COMPETENCE CENTRE FOR CANCER RESEARCH

# Areas of activities of the CCCR

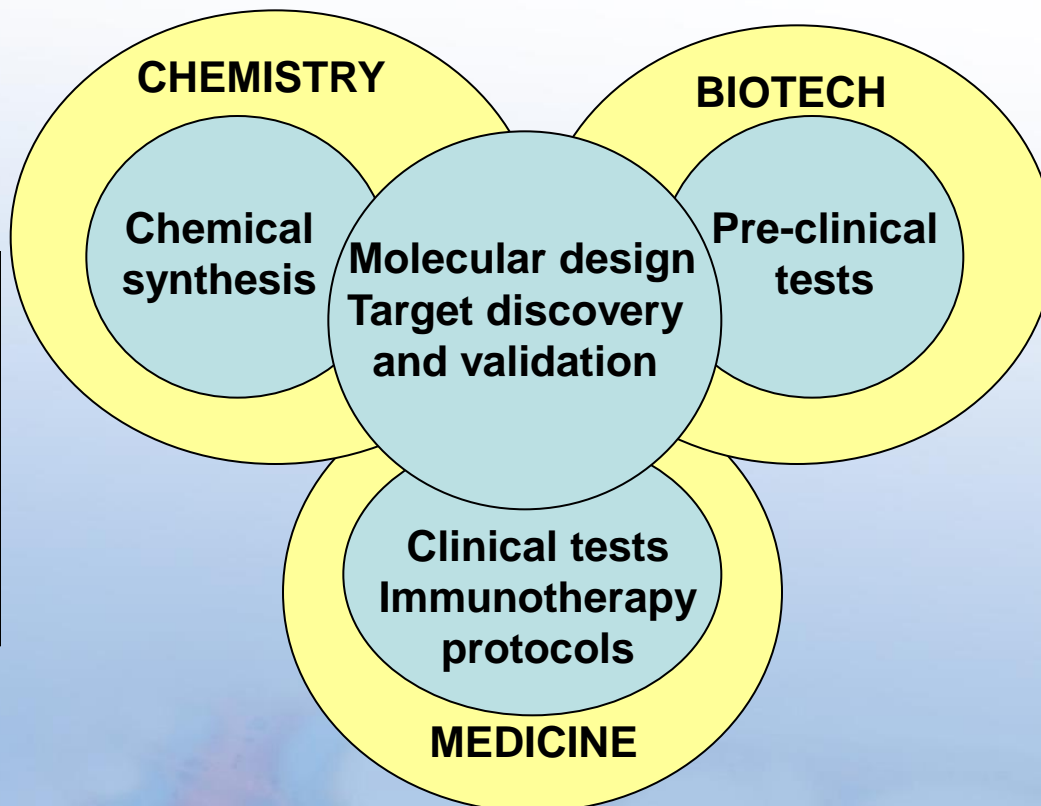




COMPETENCE CENTRE FOR CANCER RESEARCH

# R&D strategy –

# interdisciplinary approach



Tallinn University of  
Technology,  
Institute of  
Chemistry  
Cambrex Tallinn  
Ltd.  
Kevelt Ltd.

Tallinn University of  
Technology,  
Institute of Gene  
Technology  
Tartu University,  
Institute of  
Molecular and Cell  
Biology  
Celecure Ltd.  
Protobios Ltd.  
Baltic Technology  
Development Ltd.  
Quattromed HTI  
Ltd.

North Estonian Medical Centre  
TFS Trial Form Support  
EPhaG Ltd.



# Results 2009-2013

- 3 orphan drug permissions from EMEA/FDA
- Oncogenetic tests implemented in Estonian medical practice
- 600 cancer patients in Estonia involved in different research protocols
- 6 new patents
- 4 new patent applications
- 2 PCTs
- 14 graduate thesis and dissertations (BSc, MSc, PhD)
- 75 scientific articles by CCCR staff
- 55 scientific presentations
- 14 other presentations



COMPETENCE CENTRE FOR CANCER RESEARCH

# Project portfolio

- Diamut – early diagnosis of colorectal cancer
- Oncohist – drug development project of Phase I/II orphan drug against acute myeloid leukemia
- Melanoma pathogenesis
- Bioenergetic properties of cancer
- Natural Killer Cell Proliferation Mechanisms, Estonian Science Foundation
- The effect of novel growth factors to productivity of therapeutic proteins in mammalian cells, Estonian Science Foundation
- Curricula development at TUT and UT University



COMPETENCE CENTRE FOR CANCER RESEARCH

# Achievements and Merits

- All scientific groups/companies involved in cancer research in Estonia are partners of the CCCR – successful creation of critical mass
- Novel IP
- Repatriation of 6 top-level scientists from Sweden, USA and Finland
- Several national and international scientific awards to our scientists
- Finnish Quality Award 2010
- Finalist in EUREGIO 2010
- Finalist in BIZ Barcelona 2011
- Scientific Collaboration Award 2013



COMPETENCE CENTRE FOR CANCER RESEARCH

# Commercialization strategies

- Out-licencing of IP
- Sales of IP
- Establishment of spin-offs
- Implementation and commercialization by partners
- Export of contract research services
- Local sales of contract research services
- Cross-use of foreign representations with other Estonian technology companies





# Examples of commercialization

- Pre-agreement to out-licence the IP stemming from a drug development project to Lipoxen Ltd.
- One project in incubation in Gothenburg Biotechnology Incubator
- Out-licencing of a new patent by Protobios
- Export of services related to pre-clinical trials
- Sales of sequencing services, gene testing, production of recombinant proteins, synthesis of peptides etc.



COMPETENCE CENTRE FOR CANCER RESEARCH

# CCCR Cambridge Ltd.

- Established in autumn 2012
- Proposed location: Babraham Research Campus – Cambridge - UK
- Strategic aims:
  - better access to VC funding
  - integration with UK cancer research networks (NIHR Cancer Research Network, Cancer Research UK, National Cancer Research Institute etc.)
  - to benefit from geographical closeness with potential end-users



COMPETENCE CENTRE FOR CANCER RESEARCH

# IP Strategy

- Use of the expertise of partners for identifying patentable IP
- Cooperation with international patent offices for selection of best IP strategy in all individual cases
- Special conditions for the common use of pre-existing IP
- Division of novel IP according to co-funding



COMPETENCE CENTRE FOR CANCER RESEARCH

# Competitiveness of the CCCR

## Approaches

- Clear aims and visions of the industry partners; need-driven projects
- Proven technology transfer pipelines between academic and industry partners
- Interdisciplinary and cross-border cooperation
- Collaboration with medical doctors; support of big hospitals
- Joint use of scientific equipment by all partners
- Attractive centre for partners and scientists

## Results:

- First successful commercialization and implementation experiences
- New projects in CCCR project portfolio
- Innovative solutions for cancer treatment
- All projects clearly aimed at results implementable in clinics
- Relatively low costs of infrastructure
- The number of partners has increased, the number of employees has increased, 4 repatriated scientists



COMPETENCE CENTRE FOR CANCER RESEARCH

# Value for industrial partners

- Added financial capacity for novel R&D projects
- Access to interdisciplinary pool of cooperation partners and specialists
- Synergy of different approaches (molecular biology, organic synthesis, immunology, clinical medicine, chemistry, physics, bioenergetics etc.)
- Increased national and international visibility
- Higher administrative capacities in EU grant management
- Better understanding of EU policies and priorities
- Decreased costs on infrastructure (due to cross-use with other partners)



COMPETENCE CENTRE FOR CANCER RESEARCH

# Value for academic partners

- Common use of infrastructure
- Supervision of graduate thesis
- On-the-job training possibilities of students
- Strong influence on the selection of research areas of academic scientists
- Monetary value from commercialization of results



# Clusters

- **Estonian HealthTech Cluster**- aimed at bringing novel products and services in Estonian health technologies to the global market
- **Medicine Estonia** – for promoting export of medical services
- **Cell Therapies Cluster** – complex solutions in cell therapy, GMP production and regulatory affairs



COMPETENCE CENTRE FOR CANCER RESEARCH

# International networks

- CCCR nominated as the National Contact Point in Estonia in ECCO (European Cancer Organization) for EU cancer research coordination (since 2012)
- Negotiations to represent Estonia in ECRIN (the European Clinical Research Infrastructure Network) in progress
- Negotiations to become a member of OEIC-EEIG (Organization of European Cancer Institutes) in progress





COMPETENCE CENTRE FOR CANCER RESEARCH

# Examples of international cooperation

- Agreement with Munich Technical University Hospital to participate in our planned multi-centre clinical study for new cancer diagnostics
- Collaboration with Karolinska Institute in cell therapy
- Collaboration with Gothenburg University and Chalmers University of Technology in development of angiogenesis inhibitor
- High – throughput screening collaboration with Helsinki University
- Cooperation with Kuopio University on angiogenesis models
- Cooperation with Turku PET Centre



# Ethical Questions

- All animal experiments have to get a permission from the Ministry of Agricultures
- All clinical trials have to pass the Ethics Committee of Human Research
- The permissions for Human Research is issued by the State Agency of Medicines; each trial has its individual EUDRACT number
- All related legislation is harmonized with relevant EU legal acts
- All clinical trials carried out by CCCR are in total accordance with EU regulations
- Common informed consent module
- Training in bioethics has been offered to all employees of CCCR



**Thank you!**