Competence Centre for Cancer Research

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- 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
Cancer

- Traditionally top-level oncobiology and oncology in Estonia
- Full oncology patient reports since 1947
- Cancer register information since 1968
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 Center program 64%

Early cancer diagnostics based on molecular profiling of solid tumors 20%

Acute myeloid leukemia treatment 11%

Other 5%

CCCR budget for 2009-2013 total 14.4 million EUR
Shareholders

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

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

To save lives and increase the quality of life through innovative solutions in the development of cancer drugs and diagnostics.
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
Areas of activities of the CCCR

- Educational projects (EU Social Funds)
- International co-operation projects funded by EU
- Services for domestic market
- Services for export
- Research projects funded by other sources
- Scientific consultations
R&D strategy – interdisciplinary approach

Chemistry
- Molecular design and validation
- Target discovery and validation
- Chemical synthesis

Biotech
- Pre-clinical tests
- Clinical tests
- Immunotherapy protocols

Medicine
- North Estonian Medical Centre
- TFS Trial Form Support
- EPhaG 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.

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

COMPETENCE CENTRE FOR CANCER RESEARCH
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
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
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
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.
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 Netork, Cancer Research UK, National Cancer Research Institute etc.)
- to benefit from geographical closeness with potential end-users
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
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
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)
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
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 OECl-EEIG (Organization of European Cancer Institutes) in progress
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!