

Project no. 852, SMIS Code 14676
Centre for Gene and Cellular Therapies in the Treatment of Cancer – ONCOGEN
POSCCE-A2-O2.2.1-2009-4



OBJECTIVES

The general objective of the project is to increase **the quality and efficiency of research and development activities in the medical field** in order to improve the population health status and **to promote the economic competitiveness among biotechnology producers.**

The aim of the project is to create a **research-development and innovation infrastructure** able to discover, sustain and **facilitate the translation to clinical trials and eventually to the medical practice of innovative diagnostic and therapeutic methods** that will complete or even replace the classic methods: chemotherapy, radiotherapy and surgery.

Specific objectives:

- Creation of a **research-development structure in the medical field** (translational medical research in cancer; integrated clinical research in cancer; stem cell department; immunology department; human cell and tissue bank; biobase);
- Increase of institutional capacity to develop **research projects** in the field;
- Development of **national and international research partnerships** in the field;
- Creation of **jobs for PhD students and researchers** in the field.

This excellence centre in research and scientific innovation will seek to significantly reduce cancer incidence, morbidity and mortality in the region. It will therefore contribute to the improvement of life quality and life expectancy of sick individuals, providing **significant social and economical benefits on the longer run to the population** as a whole.

Such a structure devoted to the interdisciplinary cooperation of the researchers **will increase the economic and social impact of the conception and implementation of diagnostic and treatment methods for cancer with direct applicability in the clinical medical sector** (innovative gene and cell therapies specific to digestive, epithelial, mammary, osseous and haematological cancers).

The Centre of Gene and Cellular Therapies in the Treatment of Cancer will enable:

- **application of worldwide progresses** by using gene and cell therapy in the field of oncology;
- **interdisciplinary integration of the current knowledge** in the field of immunology, molecular biology, biochemistry, imaging techniques, bioinformatics and genetic engineering in the holistic approach of the cancer
- **development of research funding programmes** to train specialists competitive at European level
- initiation of **clinical studies to validate the innovative cancer therapies** developed by the Centre or other similar international centres;
- setting up of the **integrated-interventional clinical research in cancer** compartment in view of developing **standard work protocols** applicable to all clinical levels: prophylaxis, screening, tracking, classic interventional treatments.

Centrul va fi dotat cu cele mai moderne echipamente, instrumente și software existente în domeniu pe plan internațional. **Temele de cercetare sunt prioritare și de mare actualitate:** cercetarea bolii canceroase și a utilizării terapiilor genice și celulare în identificarea precoce și tratarea eficientă a bolii canceroase.

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This project will create the infrastructure that will allow for the continuation and development of research and innovation activity in the field on European priority themes:

- development of cell and gene therapies;
- oncogene inactivation;
- modulation of tumour cells resistance to cytostatics;
- research on the field of transcriptional interference;
- development of the Translational Medical Research Department;
- development of the Department of Integrated Clinical Research in Cancer.

A new concept will also be explored within the centre: the antigenic cross-presentation, which is effected by the dendritic cells, can be optimised using a new specific way of antigenic loading. Establishment of an optimal dendritic cells antigenic loading strategy and **drawing up a guide for future antitumour immunotherapeutic clinical studies** is envisaged in this way.

The Centre of Gene and Cellular Therapies also intends **to establish a human cell and tissue bank**, which will contribute to the development of new therapies for cancer and other diseases, such as leukaemia, Parkinson, Alzheimer, spine lesions, cardiovascular diseases, diabetes mellitus, osteoarthritis, based on the capacity of these stem cells to multiply and differentiate into specific types of adult cells.

Setting up the Centre of Gene and Cellular Therapies in the Treatment of Cancer as **part of the County Clinical Emergency Hospital Timisoara** will allow:

- improving the knowledge of intimate mechanisms of cancer;
- development of biotechnologies;
- to synchronise treatment methods with those applied in European regional and international multidisciplinary centres;
- to develop ultimate techniques in the treatment of cancerous disease;
- translation of innovative gene and cell therapies to clinical trials integrated in the public health management strategies within the European Union;
- improvement of competences and specialisation of human resources in research and medical practice;
- growth in the number of researchers in Romania;
- to increase the visibility of Romanian research in the field and creating an excellence pole;
- creating premises for the development of SMEs in the field of biotechnologies;
- improvement of population health status and reduction of public health costs;
- decreasing the period of social reintegration of treated patients.