

Cancer Biobank Center



Introduction

The University of Ioannina Cancer Biobank Center (UICBC) is a repository and advanced lab facility that stores blood and tissue samples, tumor cells and genetic material (DNA-RNA) from cancer patients who have voluntarily donated it to the UICBC with the aim to be used for Academic cancer research.

The scope of UICBC is to bring about advancements in Academic cancer research and ultimately to assist the international fight against cancer and improve overall management of human cancer. The privacy of “donators” is maintained by restricting access to researchers and those who have permission to access the information.

Scientific Background

Genetic research published with increased frequency in high profile scientific journals reveal the extreme complex nature of cancer which is apparently associated with the clinical inability to successfully tackle the disease^[1]. Furthermore it is now well known that in depth understanding of underlying molecular mechanisms cannot be achieved using traditional study methods such as simple genetic and/or protein disorders^[2]. The leading scientific intuition is that the answer to a variety of clinical questions in relation to prevention, diagnosis as well as the individualized treatment and follow-up of cancer patients, is lying in the systematic study of good quality biological material from a large number of cancer patients^[3]. This fact has led to the understanding of the urgent need for establishing Cancer Biobanks and link them in networks, which offers major advantages for the analysis of cancer genetic background and the diagnostic evaluation of patients with hereditary predisposition to cancer aiming eventually to the ultimate clinical benefit of patients.

^[1] Lewis R: Genes versus cancer. *Nature* 2007, 446(7137):826-827.

^[2] Butler D: Translational research: crossing the valley of death. *Nature* 2008, 453(7197):840-842.

^[3] Roukos DH, Murray S, Briasoulis E: Molecular genetic tools shape a roadmap towards a more accurate prognostic prediction and personalized management of cancer. *Cancer Biol Ther* 2007, 6(3):308-312.

The use of bioinformatics in analysing Biobanks' data is considered a sine-qua-non means towards this effort. It is important to note that a significant number of academic institutes in Europe, America and other countries have already proceeded in the establishment of Cancer Biobank Centers. In addition to that, the European Union is supporting towards the formatting of an inter-European Cancer Biobank Network for academic research purposes as well as for the economical independency of European institutes from research products, which are exclusively made in the USA

In 2007, a group of clinical and basic scientists of the University of Ioannina, who engulfed similar scientific concerns and shared common interests, teamed up and proceeded to the founding of UICBC. Today, UICBC is a member of the Biobanking and Biomolecular Resources Research Infrastructure (BBMRI) of the integrate Europe's existing biobanks into a single network.

Facilities & Infrastructure

UICBC (Biological Material Storage Unit and Research Laboratories) are located in the premises of the Medical School of Ioannina University in appropriately designed and reformed buildings.

Up to date the UICBC is equipped with a variety of instruments, some of which are: -30°C and -80°C freezers, PCR machines, microscopes, real time PCR platform for 96 and 384 samples (LightCycler ® 480 Real-Time PCR System), Bioanalyzer Aginet 2100, 2D electrophoresis system Agilent 3100 etc.

Services

The targets of the UICBC include:

- The secured collection and storage of quality biological samples using validated methods from cancer patients who have consented to the donation.
- The production of valid doctoral and postdoctoral research in the fields of molecular biomarkers and molecular targets

- aiming to prevention and/or therapeutic specificity enabling eventually the successful use of individualized cancer treatment.
- The theoretical and practical training of undergraduate and post-graduate students in advanced techniques of molecular cancer research.
 - The collaboration of the UICBC with other National and International Academic Institutes on common research projects.

Staff & Contact Information

The UICBC is supervised by a Scientific Committee composed of academic staff members from the University of Ioannina.

Information can be obtained by contacting:

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Representative Publications

1. Chira P., Vareli K., Sainis I., Papandreou C., Briasoulis E., *Alterations of MicroRNAs in Solid Cancers and Their Prognostic Value*. *Cancers*, 2010. 2(2): p. 1328-1353.
2. Sainis I., Fokas D., Vareli K., Tzakos A., Kounnis V., Briasoulis E., *Cyanobacterial Cyclopeptides as Lead Compounds to Novel Targeted Cancer Drugs*. *Marine Drugs*, 2010. 8(3): p. 629-657.