Mini Review

It Medical Team
https://www.itmedicalteam.pl/

Translational Biomedicine
2172-0479

2022
Vol. 13 No. 6: 239

# Research in Oncology: by Anti-Cancer Therapies

Joaquim Cezar Felipe*

Department of Anatomy and Cell Biology, La Paz University Hospital, Spain

**Corresponding author:**
Frank Soldner

Jaenisch.fra3@gmail.com

Department of Anatomy and Cell Biology, La Paz University Hospital, Spain

**Citation:** Felipe JC (2022) Research in Oncology: by Anti-Cancer Therapies. Transl Biomed, Vol. 13 No. 6: 239.

**Received:** 02-Jun-2022, Manuscript No IPTB-22- 12882; Editor assigned: 08-June-2022, **PreQC No.** PQ - 12882; **Reviewed:** 22-June-2022, QC No. IPTB -22-12882, **Revised:** 27-June-2022, Manuscript No. IPTB-22- 12882 (R); **Published:** 01-July-2022, DOI: 10.21767/ 2172-0479.100239

## Introduction

The improvement of cancer survival is significantly aided by comprehensive cancer centres. With the hope that many European CCCs will strive for this rank, we have created an Excellence Designation System across Europe that consists of criteria to evaluate "excellence" in translational research. The Authors, 2015. Published on behalf of the Federation of European Biochemical Societies by Elsevier B.V. According to the CC BY-NC-ND licence, this article is open access. Finding factors that can support the success of translational cancer research is becoming increasingly important. Another top aim is to increase performance in order to shorten the time it takes to take successful innovations from the lab to the clinic and to return data from clinical studies to the lab for more research or the discovery of novel biology. The EU Sixth Framework Programme's decision to support clinical research for the first time was motivated by the rising incidence of cancer and the possibility that European cancer research may perform significantly better [1]. The EurocanPlus project, funded in October 2005, conducted a thorough assessment of European cancer research to identify hurdles to cross-national and intra-European collaboration between diverse stakeholders [2]. This project's primary findings included the necessity of strengthening inter-cancer research centre cooperation in order to reach critical mass and share the infrastructure required for ground-breaking translational cancer research. Being the only organisational form in which cancer treatment and care are intimately connected with research and education and, therefore, ideal for translational research, the idea of a Cancer Centre was considered to be of meaningful structure [3]. The EurocanPlatform, which combines 23 European cancer research centres and 5 cancer organisations to structure translational cancer research, was supported by the European Commission in 2011 as a continuation of the EurocanPlus initiative [4].This platform's long-term goal is to establish a sustainable translational cancer research platform with the critical mass of understand, assets, infrastructures, and patients required to promote innovation and enhance performance in all areas of cancer research, particularly translational research. Cancer Core Europe is recently established among six EurocanPlatform centres as an important first step toward the creation of such a platform [5]. A work package was made to generate a mechanism to identify "CCCs of Excellence" that could be eligible for future European funds, as requested by the EC. One of its main objectives was to provide a methodology for examining specific CCCs of Excellence in translational research. We previously outlined the processes that were taken to create a draught Excellence Designation System in order to achieve these goals [6]. This involved a 2-year process involving researchers, managers, physicians, and patient representatives from cancer institutions across Europe, but also evidence from one of the most recent literature. We now go over final EDS, which would have been produced in conjunction with the European Academy of Cancer Sciences and EurocanPlatform and tested with three European CCCs [7]. Dialogue is had concerning its relevance to CCCs and translational research During last decade, translational researchers have developed considerably, athere are many classifications available Only a small number, nevertheless, cover the entire cancer research continuum from bench to bedside and the converse [8]. Translational research highlighted the biological basis for observations obtained in cancer patients or populations at risk for cancer OR develops and tests the viability of cancer-relevant therapies in people using knowledge of human biology [9]. The term interventions is used in the broadest sense possible to refer to molecular assays, imaging technologies, medication, biological agents, and or other methodologies that are relevant to the prevention, early detection, diagnosis, prognosis, and or treatment of cancer [10]. This point of view is presented in three portions: an introduction to the EDS, that these we piloted with three European CC in September 2014 at the Helsinki University Central Hospital Cancer Centre, Cambridge Cancer Center, and The Netherlands Cancer Institute; a summary of the pilot results and the experiences of CCCs and peer-reviewers from partaking in the pilot; and a discussion of the system's suitability for translational oncology and a final section statement.

## Discussion

European CCCs have also undergone series major national inspections. Additionally, they are responsible to European and international evaluations, such as the Organization of European Cancer Institutes' accreditation and designation scheme. The EDS was of the position that it should not reinvent the wheel or add more bureaucracy by designing up an entire new assessment system. Hence, it bases itself into the regional and international assessments. The OECI recognition & designation system, whom the EDS criteria builds upon, and the facts that numerous scientometric and quantitative studies are already a part of both the OECI-system and other evaluation processes are the prime motivations why EDS criteria are made descriptive. One of the leading causes of death in the world is cancer, and during the past ten years, numerous research projects have concentrated on developing novel treatments to lessen the adverse effects of existing ones. As cancer progresses, tumours become extremely heterogeneous, resulting in a mixed population of cells with a variety of molecular characteristics and therapeutic responses. This variability, which is crucial for the establishment of resistant phenotypes encouraged by a selection pressure upon treatment delivery, is discernible both at the geographical and temporal levels. Typically, cancer is handled as a single, uniform disease, and tumours are viewed as a whole cell population. Therefore, a thorough knowledge of these complicated events is essential for designing accurate and effective. In order to administer traditional chemotherapeutic medications in vivo, increase their bioavailability and concentration around cancer tissues, and improve their release profile, Nanomedicine offers a flexible platform of biocompatible and biodegradable technologies. Nanoparticles can be used for a variety of purposes, including therapy and diagnosis. Extracellular vesicles, which are involved in the formation of cancer, the change of the microenvironment, and the spread of metastatic disease, have recently attracted a lot of attention as effective drug delivery systems. Due to their anti-proliferative and pro-apoptotic qualities, numerous phytochemicals and natural antioxidants have lately been used as adjuvant medicines in the fight against cancer. Another type of cancer treatment known as targeted therapy focuses on one specific area, such as the intracellular organelles or tumor vasculature, while sparing the surrounding tissue. This greatly improves the treatment's specificity and minimizes its disadvantages. Another potential possibility is based on gene therapy and the production of genes that cause apoptosis and tumor suppressors of the wild type, or the targeted silencing mediated by siRNAs, which is now being tested in several clinical trials across the globe. By allowing for the localization of treatment in extremely small and precise locations, thermal ablation of tumors and magnetic hyperthermia are creating new possibilities for precision medicine. These techniques might serve as an alternative to more intrusive procedures like surgery. Additionally, emerging sciences like radiomics and pathomics are assisting in the creation of creative methods for gathering massive amounts of data, developing novel therapeutic approaches, and accurately predicting patient responses, clinical outcomes, and cancer recurrence. Together, these approaches will be able to offer cancer patients the greatest individualized treatments, showing the value of fusing many fields to achieve the best results.

## Conclusion

Various approaches to cancer diagnosis and therapy will be discussed, along with their current status in the clinical context, underscoring their impact as cutting-edge anti-cancer strategies. We will also provide a general overview of the most advanced basic and applied cancer therapies in this review, along with newly proposed methods that are currently under investigation at the research stage that should overcome the limitations of conventional therapies. Due to their small size and high surface-to-volume ratio, nanoparticles are peculiarly physicochemical systems. In order to address some of the problems linked to cancer treatment, biocompatible nanoparticles are used together these approaches will be able to offer cancer patients the greatest individualized treatments, showing the value of fusing many fields to achieve the best results. Various approaches to cancer diagnosis and therapy will be discussed, along with their current status in the clinical context, underscoring their impact as cutting-edge anti-cancer strategies. We will also provide a general overview of the most advanced basic and applied cancer therapies in this review, along with newly proposed methods that are currently under investigation at the research stage that should overcome the limitations of conventional therapies. Due to their small size and high surface-to-volume ratio, nanoparticles are peculiarly physicochemical systems. In order to address some of the problems linked to cancer treatment, biocompatible nanoparticles are used. Due to their interaction with magnetic fields, super paramagnetic iron oxide nanoparticles are frequently used as contrast agents in magnetic resonance imaging. Ferumoxides ferucarbotran ferucarbotran C, ferumoxtran-10, and NC100150 are the five SPIONs that have been tested for MRI. Only a few nations still sell ferucarben, while the others have had their markets shut down. Thermal ablation and magnetic hyperthermia are two cancer treatments that SPIONs have also been investigated for, and a kind of iron oxide coated with aminosilane known as Nanotherm has already been approved for the treatment of glioblastoma.

## Acknowledgement

None

## Conflict of Interest

None

## References

1 De Sousa LA, Battin C, Jutz S, Leitner J, Hafner C et al. (2019) Therapeutic PD-L1 antibodies are more effective than PD-1 antibodies in blocking PD-1/PD-L1 signalling. Sci Rep 9: 11472.

2 Sullivan R (2007) Policy challenges for cancer research: A call to arms. Ecancer 1: 53.

3 Fleming K (2002) Declining altruism in medicine. Good service is voluntary. BMJ 324: 1398.

4 Celis JE, Ringborg U (2014) Cancer Core Europe: a first step towards a virtual cancer institute in Europe? Mol Oncol 8: 1161-1162.

5 Lawler M, Morris AD, Sullivan R, Birney E, Makaroff L et al.(2018) A roadmap for restoring trust in big data. Lancet Oncol 19: 1014-1015.

6 Rajan A, Sullivan R, Bakker S, Van Harten WH (2012) Critical appraisal of translational research models for suitability in performance assessment of cancer centers. Oncologist 17: 48-57.

7 Wright D, Corner J, Hopkinson J, Foster C (2006) Listening to the views of people affected by cancer about cancer research: an example of participatory research in setting the cancer research agenda. Health Expect 9: 3-12.

8 Böldicke T (2007) Blocking translocation of cell surface molecules from the ER to the cell surface by intracellular antibodies targeted to the ER. J Cell Mo Med 11: 54-70.

9 Drost J, Karthaus WR, Gao D, Driehuis E, Sawyers CL et al. (2016) Organoid culture systems for prostate epithelial and cancer tissue. Nat Protoc 11: 347-358.

10 Jones S, Hruban RH, Kamiyama M, Borges M, Zhang X et al. (2009) Exomic sequencing identifies PALB2 as a pancreatic cancer susceptibility gene. Science 324: 217.