Technologies for Cancer Research

Opinion

BIOMEDICAL
Journal of Scientific & Technical Research

ISSN: 2574 -1241

DOI: 10.26717/BJSTR.2020.25.004141

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ARTICLE INFO

Received: January 22, 2020

Published: January 29, 2020

ABSTRACT

Citation: Tania Limongi. Technologies for Cancer Research. Biomed J Sci & Tech Res 25(1)-2020. BJSTR. MS.ID.004141.

Opinion

From an ever wider collection of scientific publications and from the continuous updates provided by the mass media, it is clear how the interconnection between technology and oncology is now close and profitable. By now, the fight against this scourge that strikes with almost no discrimination of age, sex or social position, is conducted with huge expenditure of economic resources and personnel by doctors, engineers, chemists, computer scientists and statisticians. Progresses in many different technological contests are bit by bit contributing to make cancer a handier disease by adding new alternative materials and methods able to efficient treatment to be included in the arsenal available to oncologists. In an increasingly personalized medicine scenario, the use of new smart materials and technologies opens up new possibilities for the application of micro/nanoparticles [1,2], lab on chips [3] and a whole series of more or less engineered biological components for drug delivery, diagnosis or treatment in cancer management [4-6]. In order to assess data about the topic 'cancer technology', in the January of 2020, I conducted a literature search, using the Thomson Reuters Web of Science research portal. Results showed 44,585 records that were analysed and summarized sorting data by read count and setting the minimum record count to 100, considering both the 'Web of Science Categories' (Table 1) and the 'Counties/Regions' (Figure 1) point of view.

Figure 1: The 'Counties/Regions' (Figure1) point of view.

The results highlighted how much technology, in terms of radiology, nanotechnology, design of new surgery equipment's or human tissue substitute, contributes to assisting other subjects such as biochemistry, cellular and molecular biology, pharmacology and pathology in the fight against cancer (Table 1). wild and transversal is the literature that can relate to this type of research and it clearly shows how the scientific production is centered on nanotechological, pharmacological and chemical aspects. In my opinion it is very interesting and encouraging to note that the contribution in terms of number of scientific publications for the period under consideration is very high even in the case of small geographical realities or in the case of regions that do not yet have a large number of funds. This fact must give us hope because, in any case, it indicates that we are going in the right direction, with a strong sharing of intent. Many new technologies still have to attest their value and safety in oncological clinical trials, however, a future where cancer handling is successfully personalized it is more and more likely.

Table 1: Results showed 44,585 records that were analysed and summarized sorting data by read count and setting the minimum record count to 100, considering both the 'Web of Science Categories'.

Web of Science Categories	Records	% of 44585
ONCOLOGY	9765	21.902
BIOCHEMISTRY MOLECULAR BIOLOGY	3317	7.440
RADIOLOGY NUCLEAR MEDICINE MEDICAL IMAGING	3130	7.020
PHARMACOLOGY PHARMACY	2922	6.554
BIOCHEMICAL RESEARCH METHODS	2735	6.134
BIOTECHNOLOGY APPLIED MICROBIOLOGY	2589	5.807
MEDICINE RESEARCH EXPERIMENTAL	2470	5.540
CELL BIOLOGY	1872	4.199
GENETICS HEREDITY	1859	4.170
SURGERY	1682	3.773
MULTIDISCIPLINARY SCIENCES	1674	3.755
CHEMISTRY MULTIDISCIPLINARY	1556	3.490
NANOSCIENCE NANOTECHNOLOGY	1474	3.306
ENGINEERING BIOMEDICAL	1424	3.194
PATHOLOGY	1421	3.187
CHEMISTRY ANALYTICAL	1417	3.178
HEALTH CARE SCIENCES SERVICES	1403	3.147
GASTROENTEROLOGY HEPATOLOGY	1343	3.012
MEDICINE GENERAL INTERNAL	1183	2.653
UROLOGY NEPHROLOGY	1119	2.510
PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH	1094	2.454
ENGINEERING ELECTRICAL ELECTRONIC	1036	2.324
OPTICS	999	2.241
OBSTETRICS GYNECOLOGY	975	2.187
MATHEMATICAL COMPUTATIONAL BIOLOGY	874	1.960
(204 Web of Science Categories value(s) outside display options.)		
(22 records (0.049%) do not contain data in the field being analysed.)		

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