Detection of Circulating Tumor Cells in Patients with Breast, Prostate, Pancreatic, Colon and Melanoma Cancer: A Blinded Comparative Study Using Healthy Donors


Research Genetic Cancer Centre Ltd. (R.G.C.C. Ltd.), Florina, Greece
Email: *office@rgcc.genlab.com

Received 25 May 2015; accepted 4 July 2015; published 7 July 2015

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Abstract

Cancer is a diverse disease characterized by abnormal cell growth and the ability to invade or spread to other parts of the body. Because the yearly cancer rate is increasing, an important area for cancer researchers is to improve the ability to detect and treat cancer early. The current study analyzes the potential of flow cytometry to be used to detect circulating tumor cells (CTCs) in patients with various cancer types and stages. CTCs are cells that have detached from the primary tumor and entered the blood stream in the process of metastasizing to other organs. To determine the accuracy of flow cytometry in detecting CTCs, a comparative study was performed on healthy donors. In this study, blood samples from patients with breast, prostate, pancreatic, colon and skin cancer were analyzed and compared with healthy donors. The data were collected and analyzed statistically with receiver operating characteristic curve analysis. The results indicate that CTCs can be detected in over 83% of the cancer patients and therefore may be a promising method for diagnosing cancer.

Keywords

Circulating Tumor Cell, Cancer Detection, Diagnosis, Flow Cytometry

*Corresponding author.

How to cite this paper: Papasotiriou, I., et al. (2015) Detection of Circulating Tumor Cells in Patients with Breast, Prostate, Pancreatic, Colon and Melanoma Cancer: A Blinded Comparative Study Using Healthy Donors. Journal of Cancer Therapy, 6, 543-553. http://dx.doi.org/10.4236/jct.2015.67059