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Review

Application of immuno-PCR for the detection of early stage cancer

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ABSTRACT

Cancer detection in premalignant stage is directly related with increase survival rate. Several biomarkers have been investigated and characterized for monitoring changes inside the cancerous cells. Although enzyme-linked immunosorbent assay (ELISA) is the method of choice in clinical practice for detecting biomarkers in serum/urine samples. However, in certain malignancies the amount of biomarkers before reaching metastasis, are too low to be detected by conventional ELISA. The seminal work of Sano et al. led to the development of highly sensitive and powerful detection method, the immuno-PCR (iPCR), which can detect very small amount of antigens/biomarkers. In spite of, several publications on iPCR sensitivity, it has not been recommended for clinical use and is limited to the scientific community only. In order to evaluate the importance of iPCR, we have made an effort to collect published studies, supporting the use of iPCR in detecting premalignant cancer.

Contents

1. Introduction

According to the National Cancer Institute, North American Association of Central Cancer Registries, and National Centre for Health Statistics, cancer is the leading cause of death throughout the world [1]. Cell division, growth, and differentiation get out of control in malignancy, resulting in the development of mass of cells called tumor, except in some types of leukemia. Sometime cancerous cells disseminate from the neoplasm and spread in blood stream, thereby, leading to the formation of secondary tumors, known as metastasis. Numerous FDA approved therapeutic antibodies are available on the market for addressing diverse

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