

عنوان مقاله:

Exploiting Live Cell Imaging Techniques For Early Cancer Diagnosis

محل انتشار:

دومین سمپوزیوم بین المللی سرطان نسترن (سال: 1395)

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خلاصه مقاله:

Early cancer diagnosis strategies is an urgent need because of high incidence, mortality and cost-effectiveness of treatment of cancer. Cancer researchers are increasingly looking for techniques that help to early diagnosis of cancer. Providing the most accurate analysis of tissue, biopsy is the only way to make a definitive cancer diagnosis for most types of cancer. However, image processing techniques, without the need for invasive procedures such as biopsies or even surgery, are growing as an alternative which allows earlier detection of abnormalities and treatment monitoring. Loss of important spatial-temporal information of cells and a high illumination intensity and long exposure time are limitations associated with conventional imaging of fixed cells and tissues; however, these must be avoided when imaging living cells and consider a compromise between obtaining image quality and maintaining healthy cells. Fluorescently labeled proteins such as fluorescent protein tags and live cell dyes provide a favorable tool for live cells to interrogate virtually any cellular process for instance; dynamic morphology of a cell, track cell movement on surface, and measure quantities or localization patterns of fluorescently labeled molecules such as proteins and RNAs applied as molecular imaging probes in exosome tracking by streaming digital microscopic images. High-throughput expression techniques genetically can provide distinctive molecular characteristics of malignant cells by comparing expression profiles of malignant and non-tumoral cells. Molecular imaging probes target and highlight these key biomolecules by the selective depiction of cellular properties and their microenvironments characteristic for the malignant state and so, have the potential roles in the different aspect of oncologic practice, including early cancer detection, diagnosis, staging, and personalized treatment, treatment monitoring and follow-up.

کلمات کلیدی:

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