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Targeting and Isolation of Cancer Cells Using Micro/Nanomotors

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Abstract

Micro/nanomotors distinguish themselves with in situ energy conversion capability for autonomous movement, a feature that confers remarkable potential to improve cancer treatment. In this review article, three areas are highlighted where micro/nanomotors have established themselves with unique contributions, including propelled navigation to promote cancer cell targeting, powered cell membrane penetration to enhance intracellular delivery, and steered isolation of circulating cancer cells for detection. Progress made in these areas has offered promising inspiration and opportunities aimed for enhancing the efficiency and precision of drug targeting to cancer cells, improving the capability of delivering anticancer drug into cytoplasm for bioactivity, and enabling more rapid and sensitive cancer cell detection. Herein, we review each area with highlights of the current and forthcoming micro/nanomotor techniques in advancing cancer diagnosis and treatment.

Keywords:

Cancer treatment, micro/nanomotors, drug targeting, intracellular delivery, circulating cancer cells

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