

عنوان مقاله:

Development of Glass-Beads Filters for the Isolation, Culture, and Re-Collection of Cancer Cells from Blood

محل انتشار:

همایش بین المللی تحقیقات سرطان 2019 (سال: 1398)

تعداد صفحات اصل مقاله: 5

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خلاصه مقاله:

Circulating tumor cells (CTCs) are tumor cells that are considered to originate from primary cancer sites, go into the blood stream in the body, and metastasize to the other organs. Herein, we report on a simple and convenient method to trap, culture, and recollect cancer cells, the sizes of which are greater than that of normal hematologic cells by the use of glass-beads filters (GBF) having a diameter of 24 mm and a thickness of 0.4~1.2 mm, which were prepared by sintering round-shaped glass beads (diameter: 63–106 m). A small integrated glass-beads filter (iGBF) with a diameter of ca. 9.6 mm for the use in filtering a small volume of blood was also designed and prepared. It was possible to efficiently capture mouse Lewis lung carcinoma cells expressing green fluorescent protein spiked in saline/blood by single and repeated (circulation) filtrations. In addition, we successfully captured B16 CTCs from the blood of a B16 melanoma metastasis mouse model by iGBF and grow them on/in iGBF. Filtration by GBF had negligible effect on the adherent and proliferative characteristics of cancer cells. We believe that the GBF protocols .afford easy and efficient methods for early and convenient diagnosis and treatment of cancer and related diseases

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