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### Cancer Biomarkers

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### Stem cell-like cancer cells in cancer cell lines

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**Abstract:**

Both stem cells and cancer cells are thought to be capable of unlimited proliferation. Moreover, a small number of cancer cells express stem cell markers, including CD133 and ATP-binding cassette transporters, by which the cells can pump out specific fluorescence dyes, such as Hoechst33342, as well as anti-cancer drugs, suggesting that either cancer cells resemble stem cells or cancers contain stem cell-like cancer cells, called "cancer stem cells (CSCs)". Using the common characteristics of tissue-specific stem cells, it was demonstrated that many types of tumors and cancer cell lines contain CSCs, which self-renew, express stem cell markers, and are tumorigenic. It was also shown that CSCs are resistant to anti-cancer drugs and irradiation. Thus CSCs might be a crucial target for the therapy. Because tumors contain CSCs and recruited normal stem cells, both of which contribute to tumorigenesis, it is difficult to separate CSCs from tumors. By contrast, cancer cell lines do not have any contaminating normal stem cells that quickly lose multipotentiality and differentiate in normal culture condition, suggesting that cancer cell lines could be an attractive alternative source of cells for CSC research. In this review I summarize the recent progress in CSC research using cancer cell lines.

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**Keywords:**

Cancer stem cells, CD133, side population, floating spheres, cancer cell lines

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