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Brain tumor stem cells: new targets for clinical treatments?

Tunici P, Irvin D, Liu G, Yuan X, Zhaohui Z, Ng H, Yu JS.

Maxine Dunitz Neurosurgical Institute, Los Angeles, California 90048, USA.

The observation of similarities between the self-renewal mechanisms of stem cells and cancer cells has led to the new concept of the cancer stem cell. In cases of leukemia, multiple myeloma, and breast cancer, cells with a high selfrenewal potential have been identified. Furthermore, investigators have shown these cells' ability to drive the formation and growth of the tumor. Brain tumors have also been reported to possess a subpopulation of cancer stemlike cells that have the ability to proliferate, self-renew, and be multipotent. When grafted into mice, these cells are also able to generate a tumor that recapitulates that of the patient from whom the cells were derived. The identification and characterization of this new category of cells call for new therapies capable of selectively targeting and killing these multifaceted cells.

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