Glioma Neural Cancer Cell Lines - RDLP #585

Published date: Jan. 6, 2014

Technology description

BACKGROUND

The most common and aggressive type of primary adult brain cancer is malignant glioma. Current treatments for these types of cancer are largely ineffective. Gliomas are classified as actrocytoma, oliodendroglioma or ependymoma, based on the glial cell type that predominates in the tumour. Glioblastomaa Multiforme is the most common and aggressive form of malignant astrocytoma, and can arise de novo or from pre-existing lower grade tumours. The inventors and others have shown that a subpopulation of putative cancer stem cells can be isolated from diverse adult and childhood brain tumours using the neural stem cell marker CD133, and these can initiate tumour formation following xenotransplantation. Despite the desire to obtain glioma neural cancer stem cells, the purification and propagation of these cell in vitro has not been successfully achieved. Prior attempts to culture glioma neural cancer stem cell lines have resulted in the formation of spheres. The use of spheres has several limitations, including fusion, hetergeneity and progenitor problems.

There remains a need for neural tumour stem cell lines and reliable methods of purification.

DESCRIPTION OF INVENTION

A novel method of producing a neural tumour stem cell line and the neural tumour stem cell line have been discovered. The method includes the steps of (a) providing a neural tumour sample; (b) culturing cells from the tumour sample under conditions which induce formation of neural cell spheres; (c) dissociating cells from the spheres; (d) applying these cells to a substrate under conditions which allow adherence of the cells; (e) culturing these cells thereby generating a neural tumour stem cell line. The neural tumour stem cell line retains the characteristics of the tumour from which it was derived.

Application area

The neural tumour cell lines can be used in screening methods for identification of potential therapeutic agents and can be used to identify genetic markers which may be predictive for the development of such tumours. Cells from a patient's brain tumour can be cultured as described above to create a cell line, and the relative effectiveness of a therapeutic agent against the cells can be tested to determine which agent or combination of agents is most effective in treating the patient's brain tumour.

Institution

The Hospital For Sick Children

联系我们

叶先生

电 话：021-65679356

手 机：13414935137

邮 箱：yeyingsheng@zf-ym.com