

RDLP 585 - Brain Cancer Stem Cell Lines

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Technology description

A novel method of producing a neural tumour stem cell line and the neural tumour stem cell line.

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 astrocytoma, oligodendroglioma or ependymoma, based on the glial cell type that predominates in the tumour. Glioblastoma 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 cell lines, 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 cellular spheres has several limitations, including fusion, heterogeneity and progenitor problems. There remained 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 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.

Institution

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