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Glioma stem cells targeted by oncolytic virus carrying *Endostatin-Angiostatin* fusion gene and the expression of it's exogenous gene in vitro

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th the development of cancer stem cell niche theory, it gradually becomes a new hotspot and target on treatment of gliomas. So gene therapy based on the vector of oncolytic virus (VAE) shows a great advantage. This method focues on the advantage of gene therapy and virus therapy is a new treatment to gliomas. To explore whether VAE can infect and kill glioma stem cells (GSCs), meanwhile the expression of exogenous Endo-Angio fusion gene carried by VAE can inhibit GSCs' vascular niche in vitro, we have collected surgical specimens of human high grade glioma (WHO class III, VI), and GSCs were isolated under the culture conditions originally designed for selective expansion of neural stem cells. After that we achieved the following results: (1) 4 cases of GSCs isolated from 20 surgical specimens could suspend growth and had the ability of self-renewal and multipotential differentiation; could express neural stem cells marker, CD133 and Nestin. (2) VAE could infect GSCs and significantly inhibit the viability of GSCs (P<0.05); (3) Significant expression of Endo-Angio fusion gene was observed after GSCs were infected by VAE 48 hours and it could inhibit human brain microvascular endothelial cells (HBMEC) proliferation(P<0.05); (4) Residual viable cells lose the ability of self-renewal and adherent differentiation. In Conclusion, VAE can significantly inhibit the activity of GSCs in vitro and the expression of exogenous Endo-Angio fusion gene can inhibit HBMEC proliferation. VAE can be used as a novel virus-gene therapy strategy for gliomas.

Biography

Fusheng Liu has completed his M.D & Ph.D at the age of 34 years from Shandong University and postdoctoral studies from Capital Medical University and National Institutes of Health (NIH,USA) for five years. Now he is the director of Brain Tumor Research Center, an organization which studies the virus and gene therapy for human brain gliomas. He is the evaluation expert of Chinese National Natural Science Foundation (NSF) and 863 Project. He is being undertaken a couple of research projects, including NSF grants of China, Beijing Municipal NSF and the scientific research foundation for returned scholars, and has published more than 70 papers in reputed journals, gets 8 awards and writes glioma book.