Construction of a lentiviral system for overexpression of hs-Sox5 in human glioma cells

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Glioma is a tumor that originates in the cells that support neurons. It is rare, but very dangerous. The incidence of glioma is between 6-7 cases per 100000 pers/year and it is more common in men than women. There are four different types of gliomas and they are classified depending on which cell type the tumor comes from and into four different grades depending on how fast they growth. Glioma symptoms depend on which part of the brain is involved, but can include headaches, nausea and vomiting, seizures, problems with balance or walking and changes in vision or hearing.

Glioblastomas (GB) are the most aggressive tumors of the different types of gliomas and have a poor survival. The mean age at diagnose of patients is 62 years. The average survival after diagnosis is between 12 and 15 month. GB is an infiltrative disease in the surrounding tissue of the brain, hardly eradicable with surgery. This condition can develop “de novo” which is the most common or it can develop from a brain tumor of a lower grade, less malignant.

The SOX superfamily of proteins control or regulate the activity of genes. There are 20 different Sox genes in mammals that are divided into eight groups. SOX5 has been found to contribute to the formation of brain tumors. There are two types called Short-Sox5 and Long-Sox5. It has been shown that SOX5 can limit tumor development in mice. Growth of human glioma cells (HGCCs) cultured under special conditions is inhibited when SOX5 is overexpressed.

For this reason it is important to study in more detail how the overexpression of SOX5 affect the progression of glioma cells. In my study I designed and constructed a lentiviral vector with the *Sox5* gene inserted that in future experiments is going to be used to infect glioma cells and study the overexpression of this gene. In this study I also investigated for the glioma cell line with the lowest SOX5 protein concentration.

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