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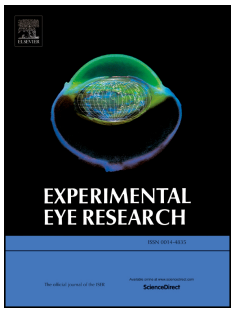

Antitumor efficacy of VP22-CD/5-FC suicide gene system mediated by lentivirus in a murine uveal melanoma model

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Antitumor efficacy of VP22-CD/5-FC suicide gene system mediated by lentivirus in a murine uveal melanoma model

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Abstract

Uveal melanoma (UM) is the most common primary intraocular tumor in adults, which has high frequency of metastasis to the liver, typically causing a fatal outcome. Chemo-resistance remains a major obstacle in the therapeutic approach to UM, leaving limited choice for treating UM. Other possible treatments have been explored but the results are yet to be evident. To improve therapy for UM, transcriptional suicide genes were transfected into the OCM-1 cell line. In the current study, OCM-1 cells transfected with lentiviral-meditated EGFP, cytosine deaminase (CD)/EGFP, and VP22-CD/EGFP were established. Of the three groups, we examined the cell growth in vitro and in vivo by using the MTT method with cell culture media and MRI in murine UM models. According to our results, the cell proliferation in the transfected CD/EGFP group was slower than the non-suicide gene group. The VP22-CD/EGFP group manifested superior cell cytotoxicity than the CD/EGFP group. Further analysis of MRI and fluorescent imaging of the murine UM model identified significant differences in tumor volume among the three groups. Collectively, our study demonstrated that CD/5-FC is a potent therapeutic approach for UM. With the efficacy of VP22, suicide gene-induced cytotoxicity was superior to applying CD alone. Taken together, we concluded that novel therapy with the VP22-CD suicide gene may further contribute to treatment of UM.

Highlights

- Introduced MRI and fluorescent imaging in a uveal melanoma murine model.
- Genetically engineered CD/EGFP OCM-1 cells are sensitive to 5-fluorocytosine; tumor reduction was observed in the orthotopic murine model.

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