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ANGIOPEP-2 GRAFTED NANOPARTICLE FOR BRAIN TUMOR TARGETING DELIVERY

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ABSTRACT

A novel drug loaded nanoparticles for brain targeting delivery was developed by conjugation with targetable moiety Angiopep-2 for increasing brain penetration. The results showed that Angiopep-2 modified nanoparticles can prolong mice live spin compared with the control and simple nanoparticles groups. It is indicated that the targetable nanoparticles could penetrate brain tissue and target delivery drugs to the brain disease area.The targetable nanoparticles were prepared with targetable moiety Angiopep-2 and copolymer PEG_{2000}-DSPE based on our previous methods. Luciferase-expressing tumor C6-Luc cells were achieved by transfection of firefly luciferase by using Fugene HD® agent in our lab. Hematoxylin-Eosin stain of brain tumor and mice survival experiments was conducted after inoculation of C6-Luc in to Wister rats. Brain tumor was growing in the brain after one week inoculation of Glioma C6-luc cells. Bioluminescence imaging from the same animal, showing a strong bioluminescence signal and the imaging area gradually increased as a function of the time after inoculation of C6-Luc . Hematoxylin-Eosin stain of brain tumor after two weeks inoculation of C6-Luc was. The tumor cells with high cellular density and several abnormally large nuclei spray from the site of inoculation to the out space. Survival curves of rat after administration of various of nanoparticles. It is indicated that the transfected C6-Luc cells were growing well in the brain, and the animals were used as a brain tumor model in this study.DOX loaded Angiopep-2 graft nanoparticles target to the brain tumor with significantly reduce live imaging of quantum levels, and prolonged rats life time. The results demonstrate that the brain targetable nanoparticle can penetrate brain tissue could provide a new platform for the development of novel neurotherapeutics.