ABSTRACT

ANGIOPEP-2 vector with ANG1005 (Angiopep-2/3-paclitaxel) as a therapeutic drug conjugate approaches the BBB via transcytosis across brain endothelial cells and is delivered to the brain parenchyma, thereby bypassing the P-gp efflux pump. The compound, ANG1005, consists of an Angiopep-2 vector with an appended paclitaxel molecule, which is delivered to the brain and may be an effective therapeutic candidate for the treatment of brain tumors.

INTRODUCTION

The brain is a unique environment for drug delivery that is protected by the blood-brain barrier (BBB). The BBB is composed of capillary endothelial cells that line the cerebral capillaries and are closely sealed by Tight Junctions (TJ). Adjacent endothelial cells are connected by adherens junctions and have very low transcytotic potentials. The BBB is formed by a family of transporters, notably the P-gp efflux pump, that contribute to the restrictive properties of the BBB. The transport of drugs to the brain is limited, resulting in a reduced treatment of brain diseases. However, Angiopep-2 is a novel drug with the ability to cross the BBB, due to its unique properties that enable it to transport drugs into the brain parenchyma.

EXPERIMENTAL MODELS

1. Brain tumor-bearing rats were used to study the efficiency of ANG1005 in vivo. The rats were treated with ANG1005 and the uptake of the compound was measured 24 hours after administration. The results showed that ANG1005 was taken up by the brain tumor cells and transported across the BBB.

2. Brain tumor-bearing rats were used to study the efficiency of ANG1005 in vivo. The rats were treated with ANG1005 and the uptake of the compound was measured 24 hours after administration. The results showed that ANG1005 was taken up by the brain tumor cells and transported across the BBB.

3. Brain tumor-bearing rats were used to study the efficiency of ANG1005 in vivo. The rats were treated with ANG1005 and the uptake of the compound was measured 24 hours after administration. The results showed that ANG1005 was taken up by the brain tumor cells and transported across the BBB.

CONCLUSIONS:

• ANG1005 is a promising drug for the treatment of brain tumors, as it is able to cross the BBB and deliver therapeutic agents to the brain.

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