

Improving gold nanorod delivery to the central nervous system by conjugation to the shuttle Angiopep-2

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Resumen

Aim: To improve the in vivo delivery of gold nanorods (GNRs) to the central nervous system of rats, these gold nanoparticles were conjugated to Angiopep-2, a shuttle peptide that can cross the blood-brain barrier. **Materials & methods:** GNRs were synthesized and modified using polyethylene glycol and Angiopep-2 (GNR-PEG-Angiopep-2). The physicochemical properties, in vitro cytotoxicity and ex vivo biodistribution of the conjugate were examined. **Results:** GNR-PEG-Angiopep-2 was stable over the following days, and the different concentrations that were tested did not affect the viability of microvascular endothelial cells. The conjugation of Angiopep-2 to GNRs enhanced the endocytosis of these particles (in vitro) and the accumulation in brains (in vivo), when compared with GNRs modified only with PEG. **Conclusion:** This study provides evidence that Angiopep-2 improves the delivery of GNRs to the brain parenchyma. This property is highly relevant for future applications of GNRs as platforms for photothermal and theranostic purposes.

Palabras clave

Palabras clave de autor: [angiopep-2](#); [blood-brain barrier](#); [drug delivery](#); [gold nanoparticle](#); [gold nanorods](#); [photothermal effect](#); [theranostics](#)

KeyWords Plus: [BLOOD-BRAIN-BARRIER](#); [POLY\(ETHYLENE GLYCOL\)](#); [DOXORUBICIN DELIVERY](#); [PHOTOTHERMAL THERAPY](#); [TRANSFERRIN RECEPTOR](#); [VECTOR ANGIOPEP-2](#); [DRUG-DELIVERY](#); [BREAST-CANCER](#); [NANOPARTICLES](#); [PEPTIDE](#)

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