Conjugation of biologically active peptides to the passivation layer of gold nanoparticles for cellular targeting

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Gold nanoparticles are continuously attracting strong interest in view of their potential as diagnostic tools in biomedicine, as drug carriers, and as model system for studying the interaction between functional nanomaterials and biointerfaces.

For all these applications it is of primary importance to have well characterized systems. Therefore, we have developed strategies for the preparation, purification, and characterization of peptide-functionalized AuNPs trying to improve the current standards.[1] We have shown that AuNPs functionalized with peptide neurotoxin conantokin G strongly bind to *N*-methyl-D-aspartate (NMDA) receptors transiently expressed by HEK 293 cells.[2]

In this contribution we show that conjugation of the peptide conantokin-G to the solvent exposed interface of the passivation layer results in improved binding of the peptide-functionalized AuNPs to the targeted NMDA receptors on the cell surface.

(1) Maus, L.; Spatz, J. P.; Fiammengo, R. *Langmuir* **2009**, *25*, 7910-7917.

(2) Maus, L.; Dick, O.; Bading, H.; Spatz, J. P.; Fiammengo, R. *ACSNano* **2010**, submitted.