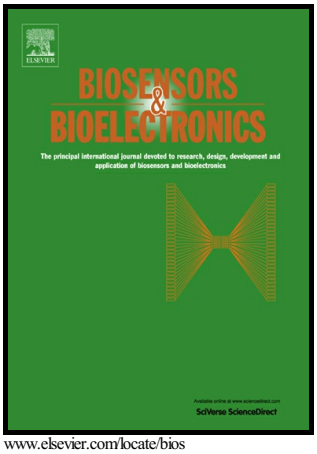

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Colorimetric Response of Peptide Modified Gold Nanoparticles: An Original Assay for Ultrasensitive Silver Detection

Xinyi Li, Zitong Wu, Xiaodong Zhou*, Jiming Hu*

Key Laboratory of Analytical Chemistry for Biology and Medicine (Ministry of Education), College of Chemistry and Molecular Sciences, Wuhan University, Wuhan 430072, P. R. China

zhouxd@whu.edu.cn (X. Zhou)

jmhu@whu.edu.cn (J. Hu).

*** Corresponding authors.**

Abstract

In this article, we for the first time present an original and ultrasensitive assay to detect Ag^+ ions, with which the aggregation of the given peptide-modified gold nanoparticles (peptide-AuNPs) can be triggered by the interaction between peptides and Ag^+. The approach has rarely been used in the colorimetric determination of Ag^+, because the mechanism of the above-mentioned interaction has not been studied through. In our assay, the principle of this interaction was investigated. Moreover, we applied it in the design of an extremely sensitive sensor for Ag^+ detection with great selectivity. It is the Ag^+-induced folding structure of the peptides that leads to the aggregation of peptide-AuNPs. The aggregation involves the formation of