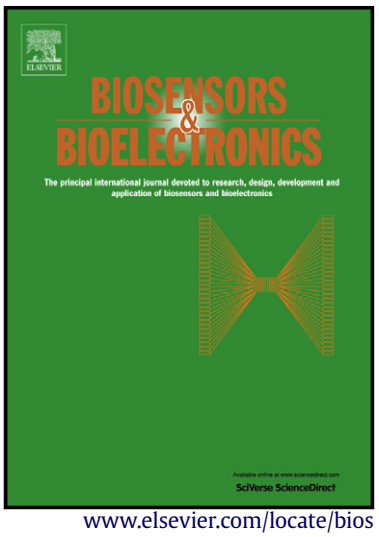

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Karuppuchamy Selvaprakash, Yu-Chie Chen

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Using Protein-Encapsulated Gold Nanoclusters as Photoluminescent Sensing Probes for Biomolecules

Karuppuchamy Selvaprakash and Yu-Chie Chen*

Department of Applied Chemistry, National Chiao Tung University, Hsinchu 300, Taiwan

*Corresponding author

E-mail: yuchie@mail.nctu.edu.tw

Phone: +886-3-5131527

Fax: +886-3-5723764

Abstract

In this study, we generated gold nanoclusters (AuNCs) using inexpensive chicken egg white proteins (AuNCs@ew) as reagents. AuNCs@ew were generated by reacting aqueous tetrachloroauric acid with diluted chicken egg white under microwave heating (90 W) through subsequent heating cycles (5 min/cycle). Within 10 cycles, red photoluminescent AuNCs@ew with maximum emission wavelength at ~640 nm (λ_{ex}= 370 nm) were obtained. The quantum yield of the as-generated AuNCs was ~6.6%. The intact and the tryptic digest of AuNCs@ew were characterized by mass spectrometry. The results showed that the AuNCs@ew were mainly