N,N-Dimethylformamide-Stabilized Gold Nanoclusters as a Catalyst for the Reduction of 4-Nitrophenol

H. Yamamoto, H. Yano, H. Kouchi, Y. Obora, R. Arakawa, and H. Kawasaki*

Department of Chemistry and Materials Engineering, Faculty of Chemistry, Materials and Bioengineering, Kansai University, 3-3-35 Yamate-cho; Suita-shi, Osaka 564-8680; Japan

Correspondence author:
Hideya Kawasaki
Department of Chemistry and Materials Engineering, Faculty of Chemistry, Materials and Bioengineering, Kansai University, 3-3-35 Yamate-cho; Suita-shi, Osaka 564-8680; Japan
Tel: +81 (6)6368 5647
Fax: +81 (6)6339 4026
email: hkawa@kansai-u.ac.jp
Figure S1. Plot of $\ln(A_{410}/A_0)$ versus time for the reduction of PNP in water over DMF-stabilized Au NCs with an excess amount of NaBH$_4$ in aqueous media at 298K. (Reaction conditions: [Au] = 1$\mu$M (based on amount of gold atoms), [NaBH$_4$] = 0.2 M, and [PNP] = $1 \times 10^{-4}$ M. Before the experiment, we used the degassing sample solution by N$_2$ gas.
Figure S2. Fluorescence spectra of the DMF-stabilized Au NCs in water (a) before the reaction and (b) after the reaction.
Figure S3. The $^{1}$H-NMR spectrum of 0.1 M DMF in $D_2O$. 
Figure S4. (a) UV–vis absorption spectrum in water and (b) MALDI-MS spectrum of glutathione-stabilized Au NCs: Au$_{25}$(SG)$_{18}$ NCs.