

One pot microwave assisted synthesis of bisphosphonate alkene capped gold nanoparticles

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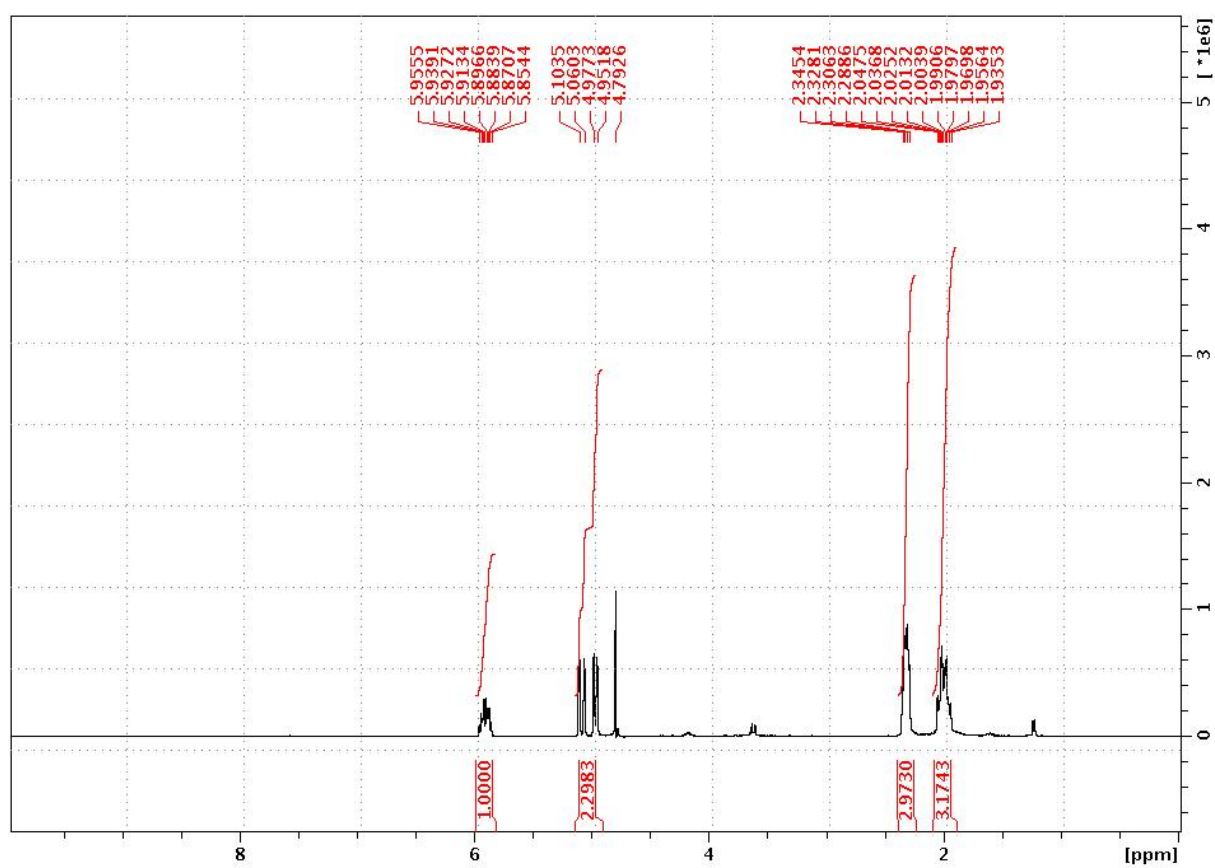


Figure S1. ¹H NMR spectrum (400 MHz, 25°C, D₂O) of HMBPene

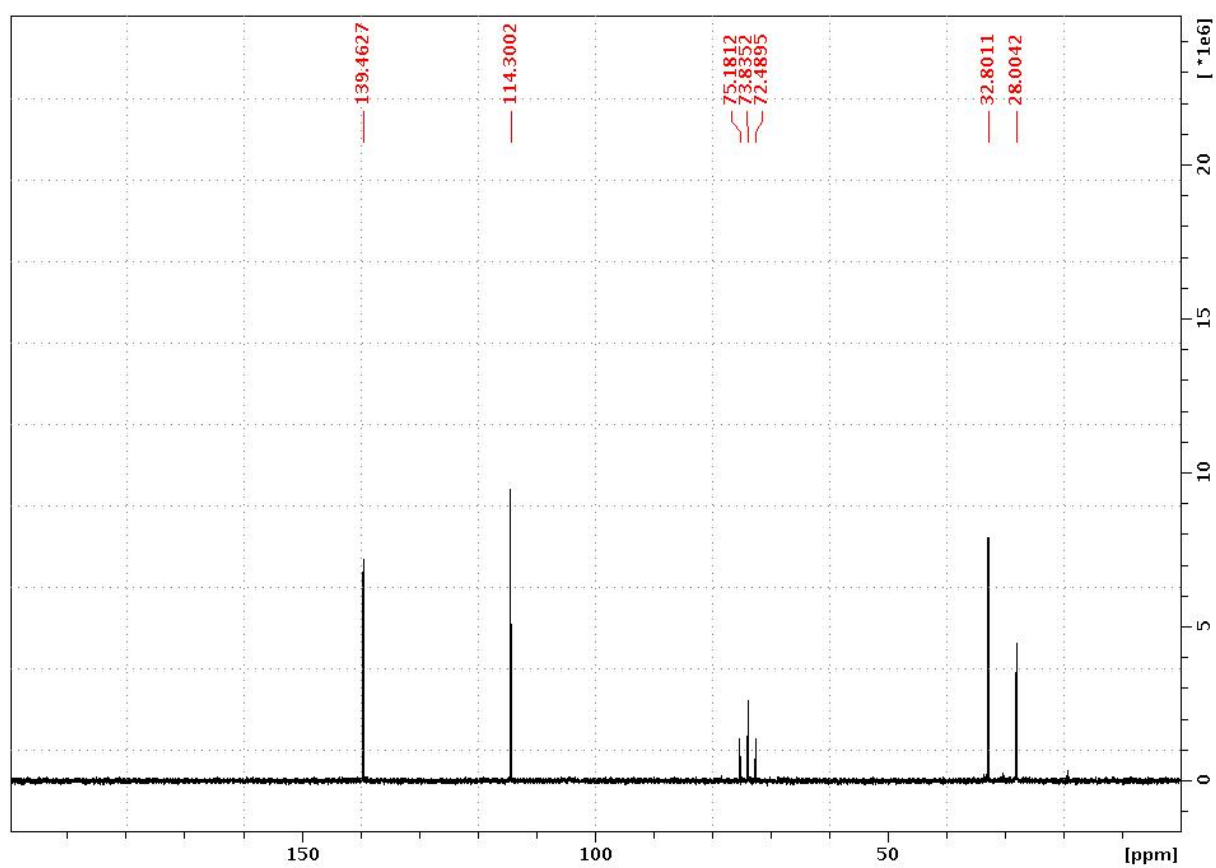


Figure S2. ¹³C NMR spectrum (100.63 MHz, 25°C, D₂O) of HMBPene

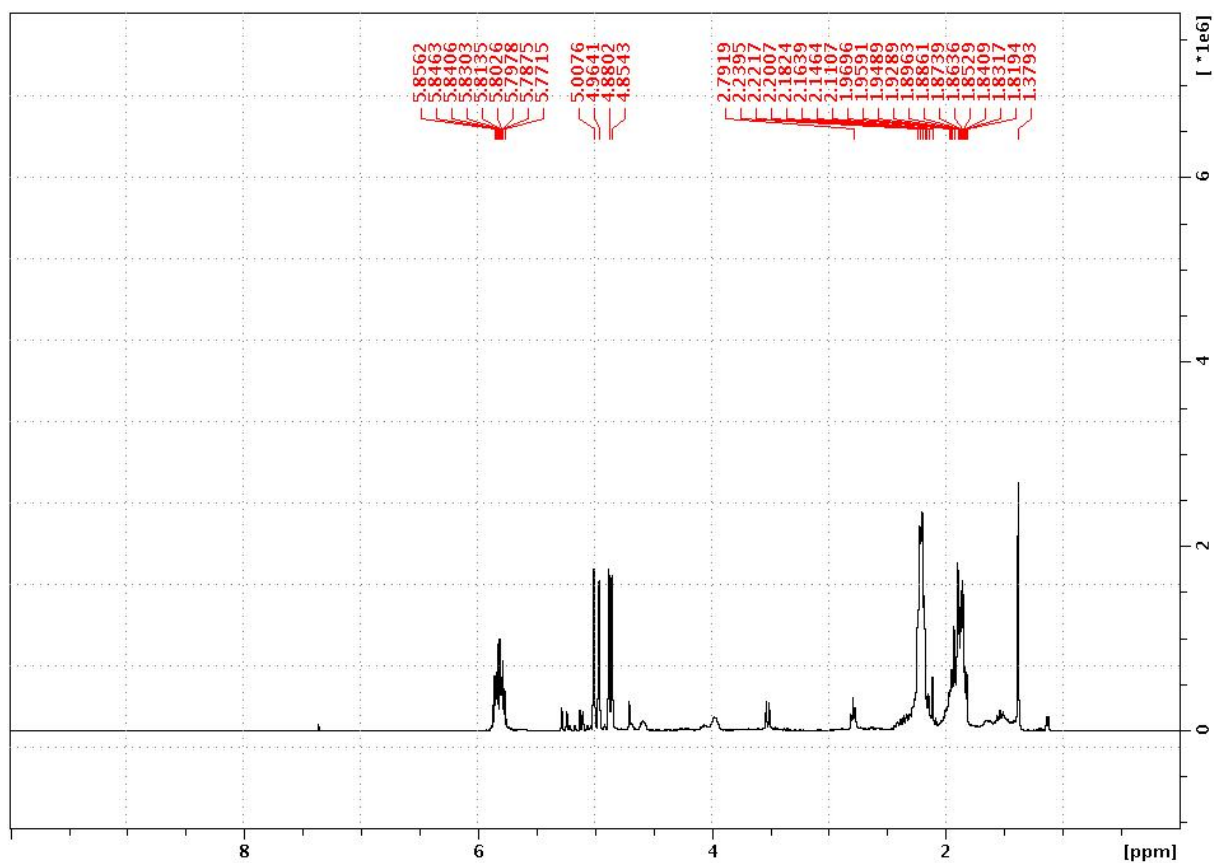


Figure S3. ^1H NMR spectrum (400 MHz, 25°C, D_2O) of GNPs supernatant

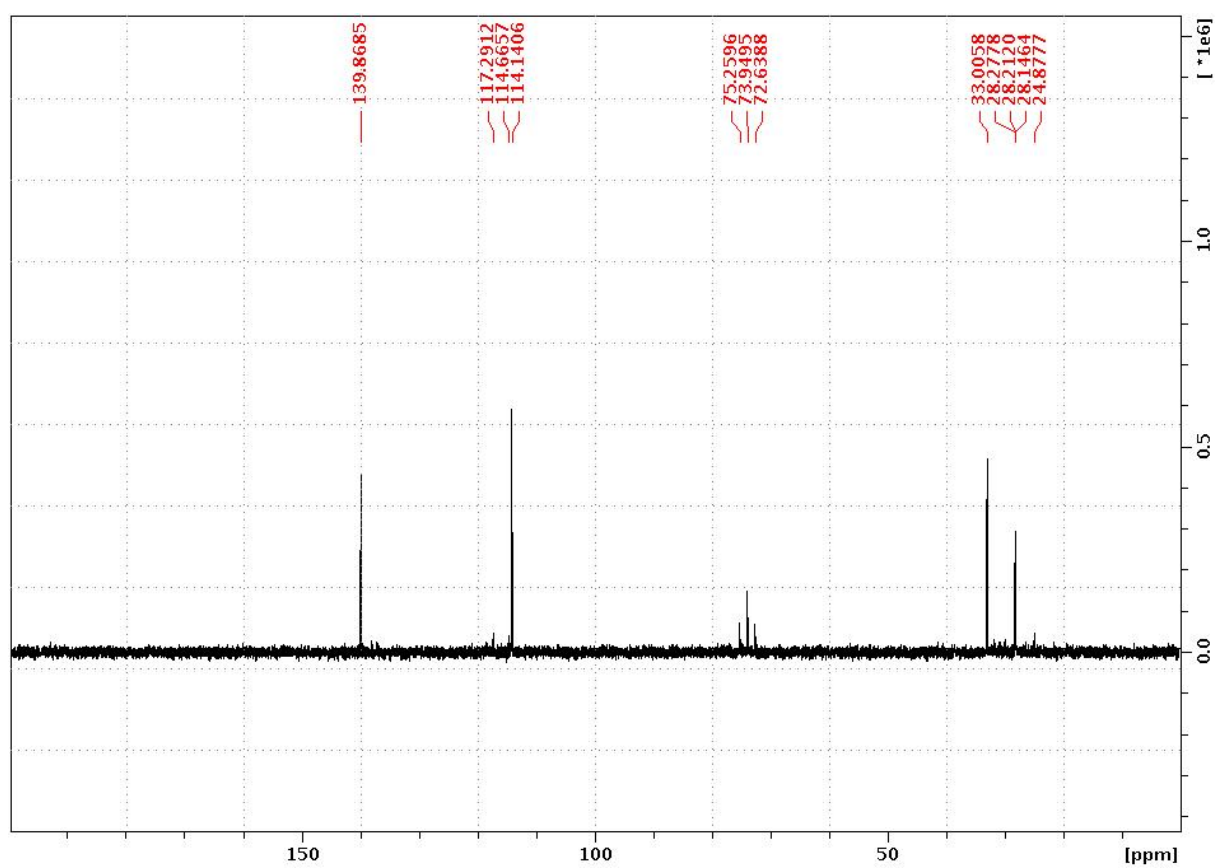


Figure S4. ^{13}C NMR spectrum (100.63 MHz, 25°C, D_2O) of GNPs supernatant

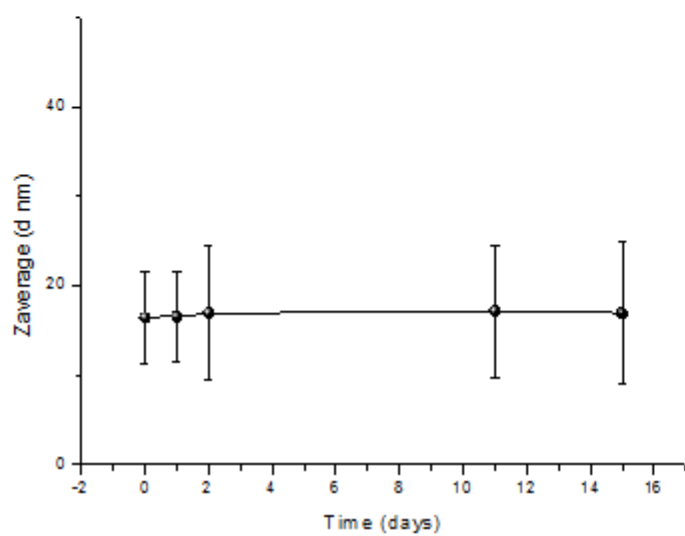


Figure S6. Stability of Au@HMBPene NPs (solutions were stored at 4°C)

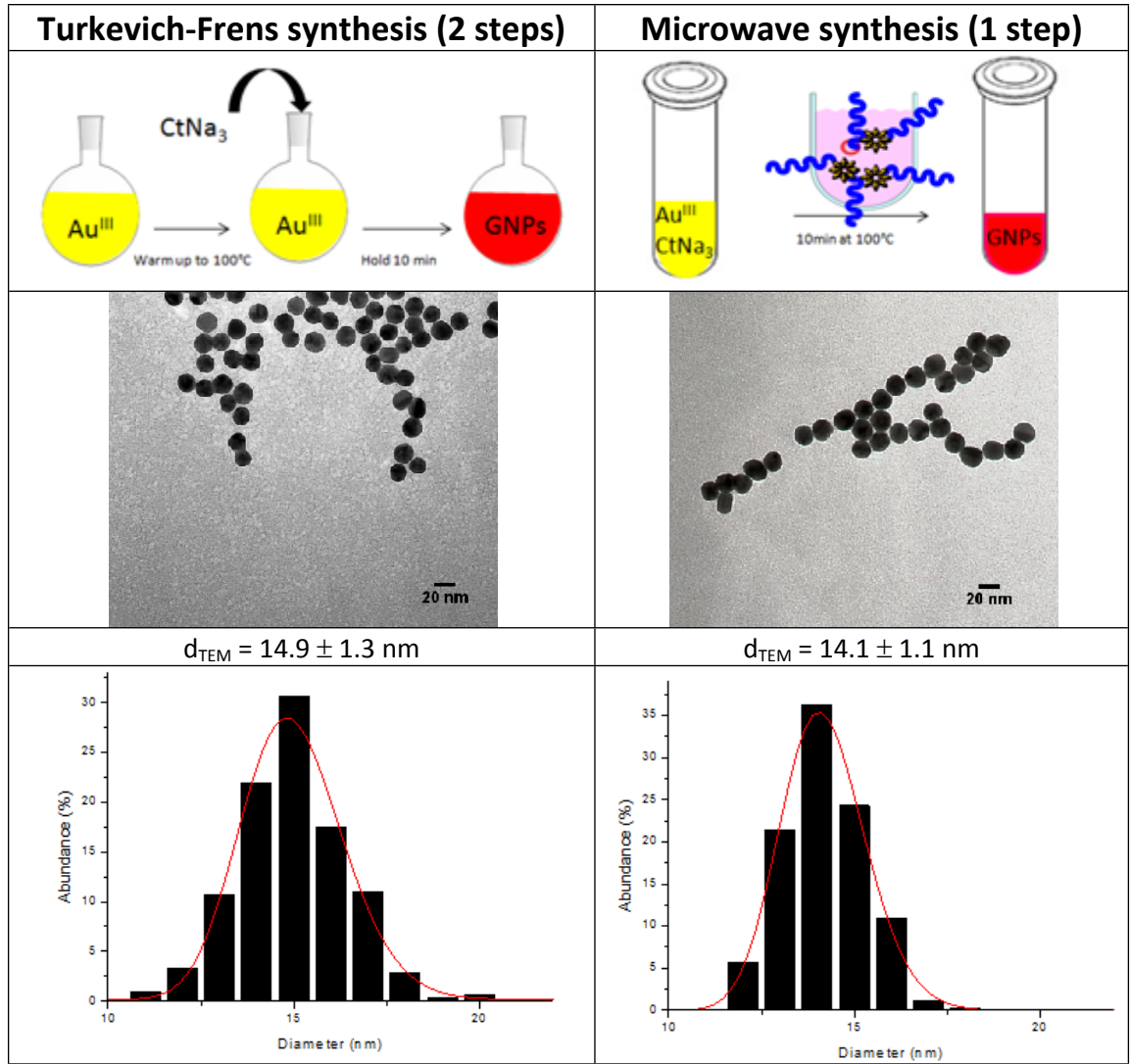


Figure S5. MW heating vs Oil bath heating: Frens-Turkevich method in one step

The median diameter d_{TEM} and standard deviation w were deduced from transmission electron microscopy (TEM) measurements, simulating the diameter d distribution with a log-normal function $g(d)$ described in Equation (1).

$$g(d) = \frac{1}{\sigma d \sqrt{2\pi}} \exp \left(-\frac{\left(\ln \frac{d}{d_{TEM}} \right)^2}{2\sigma^2} \right)$$

The $\ln(d)$ distribution standard deviation σ is related to the diameter d distribution standard deviation w by:

$$\sigma \approx \sqrt{\ln \left(1 + \left(\frac{w}{d_{TEM}} \right)^2 \right)}$$

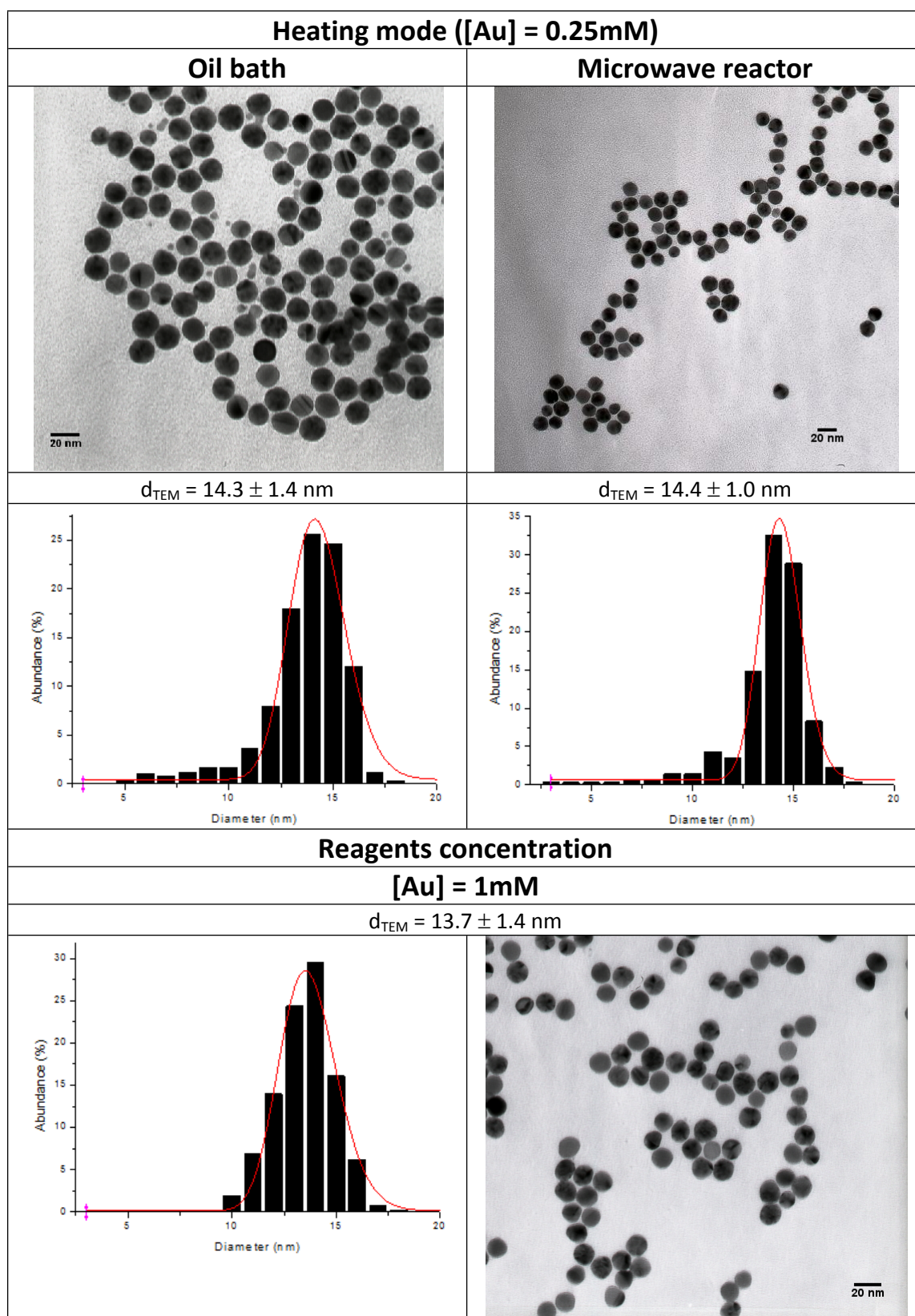


Figure S7. Reproducibility study varying the heating mode and reagents concentration

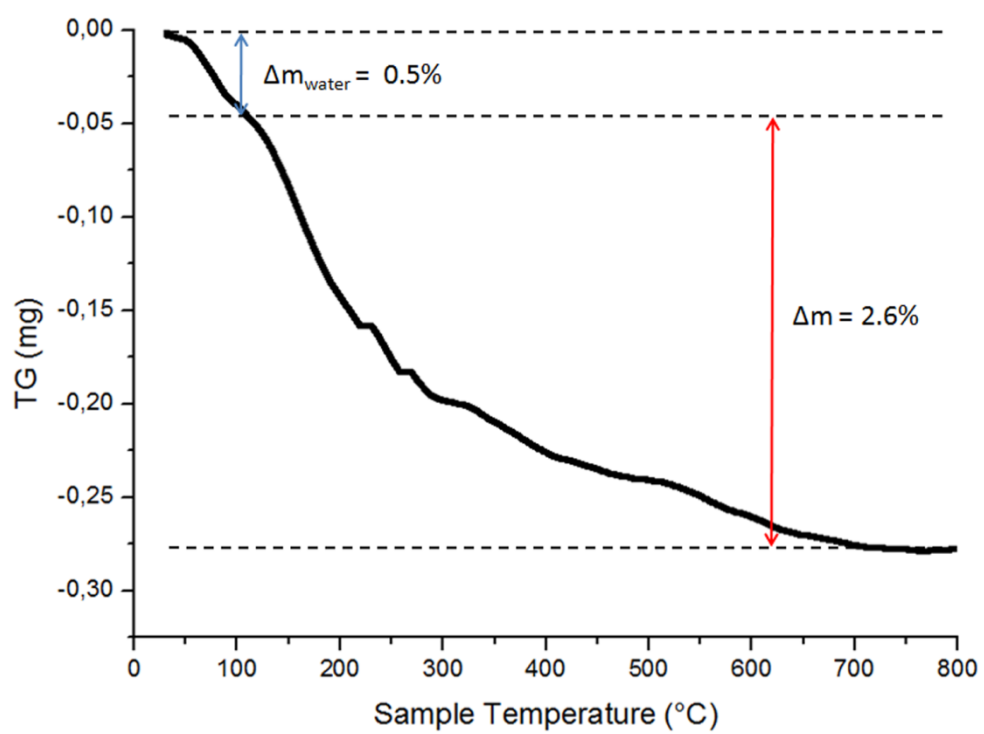


Figure S8. TGA of GNPs powder: loss in mass

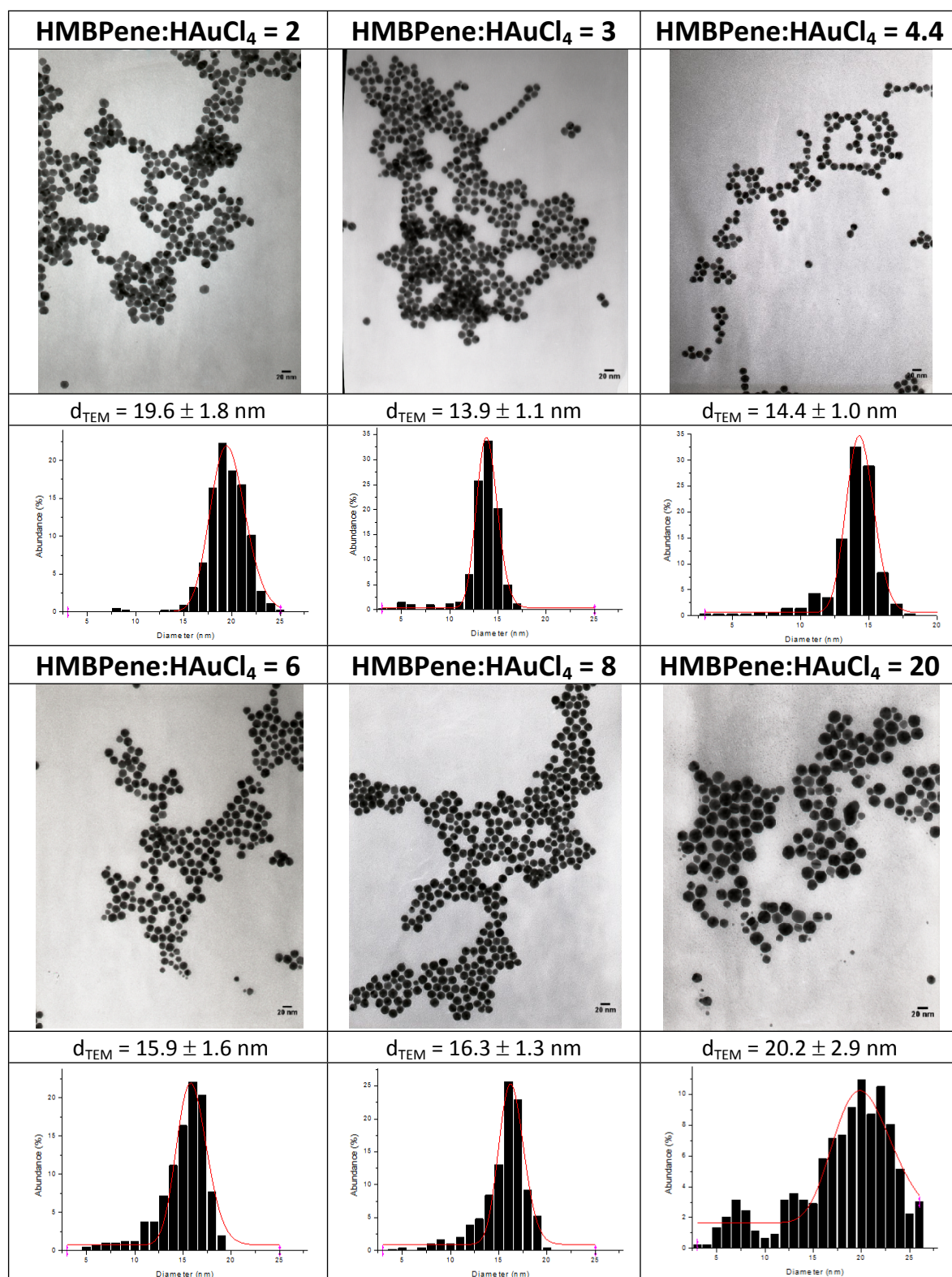


Figure S9. TEM study of GNP's size and shape varying the HMBPene:HAuCl₄ ratio

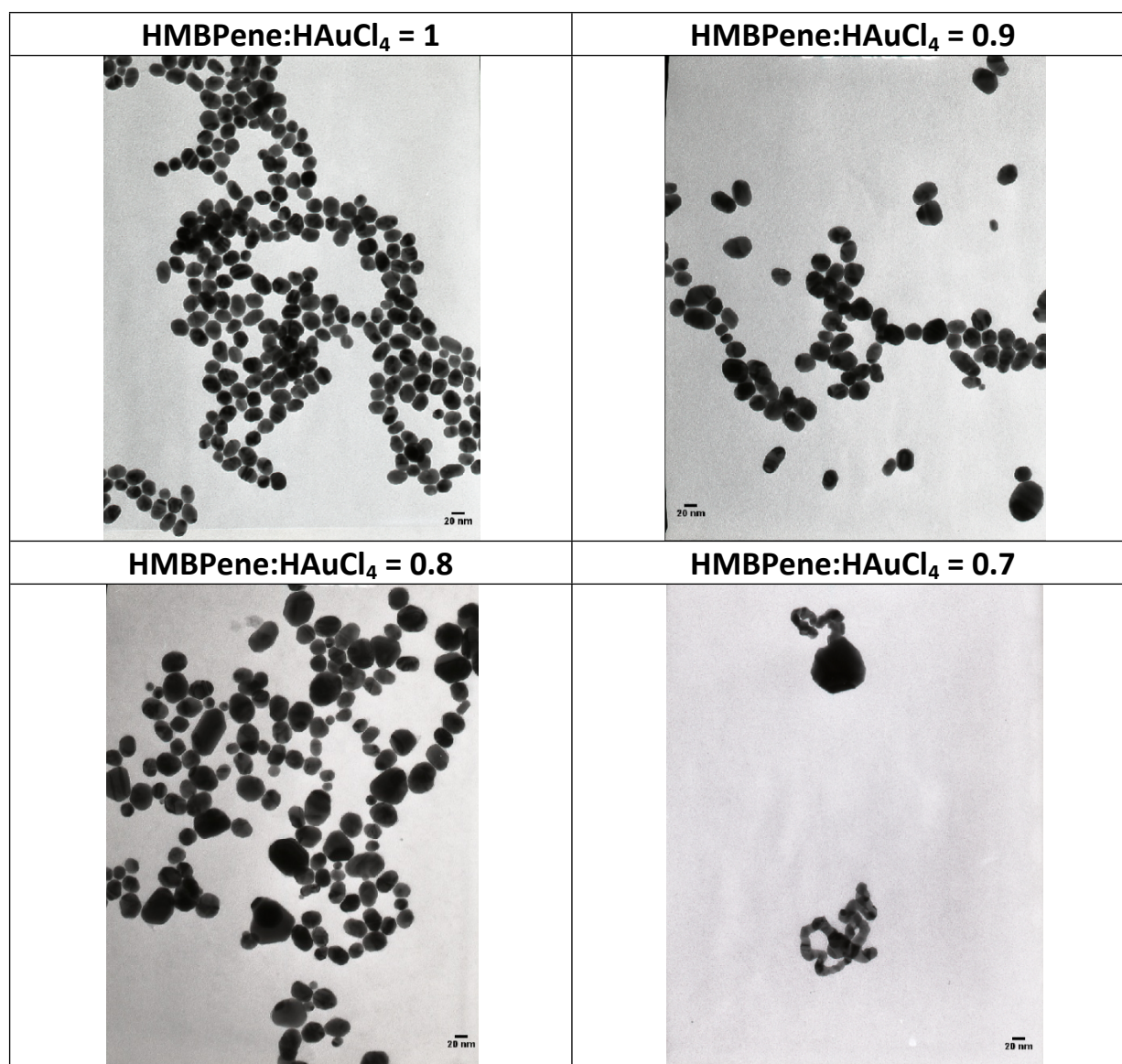


Figure S10. TEM study of GNP's shape for low HMBPene:HAuCl₄ ratio