

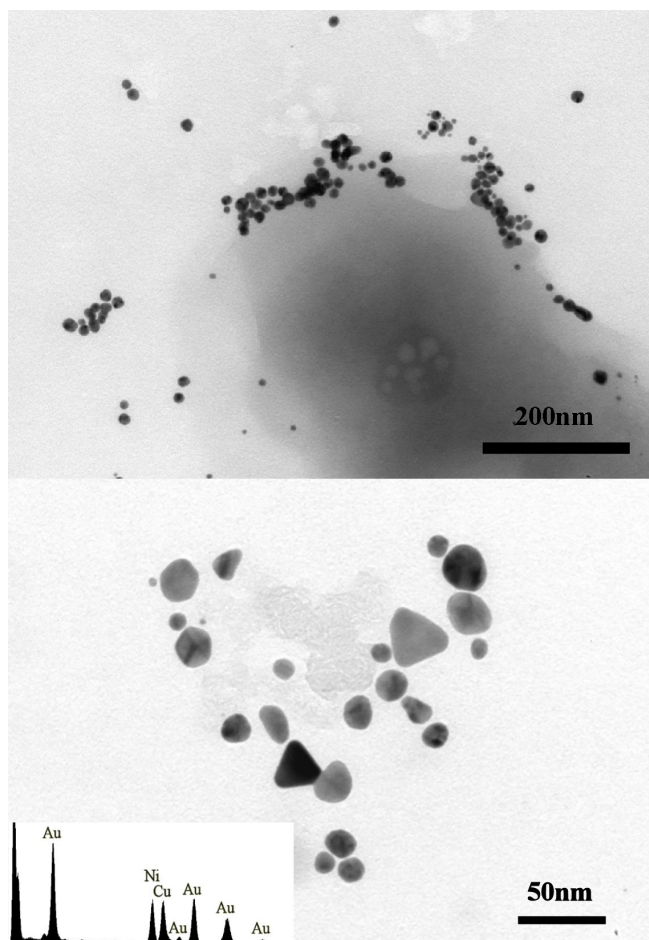


Figure S1 TEM images and corresponding EDXA of gold nanoparticles.

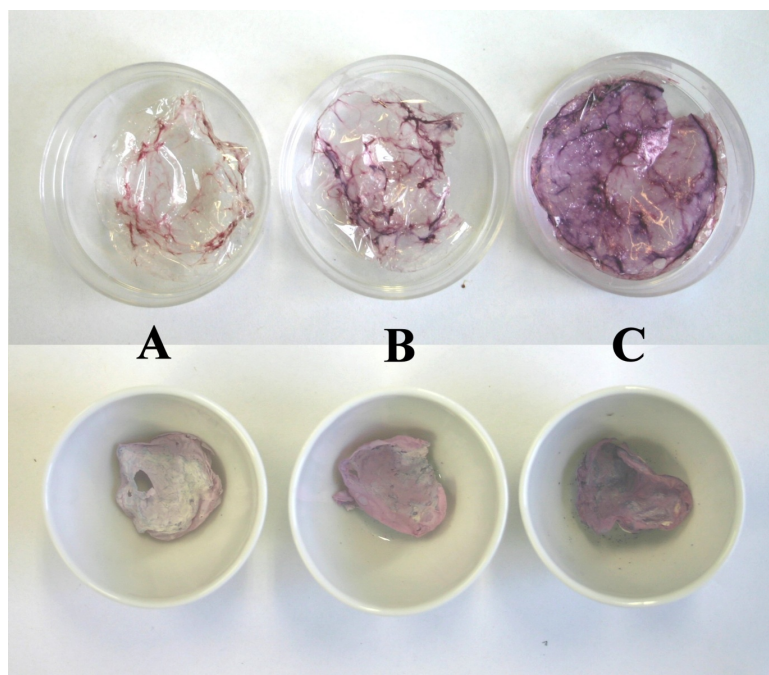


Figure S2 $\text{Ce}(\text{NO}_3)_3/\text{Au}/\text{Alginate}$ films (upper) and CeO_2/Au nanocomposites (lower) at 1%, 2% and 5% Au by weight for A, B and C respectively

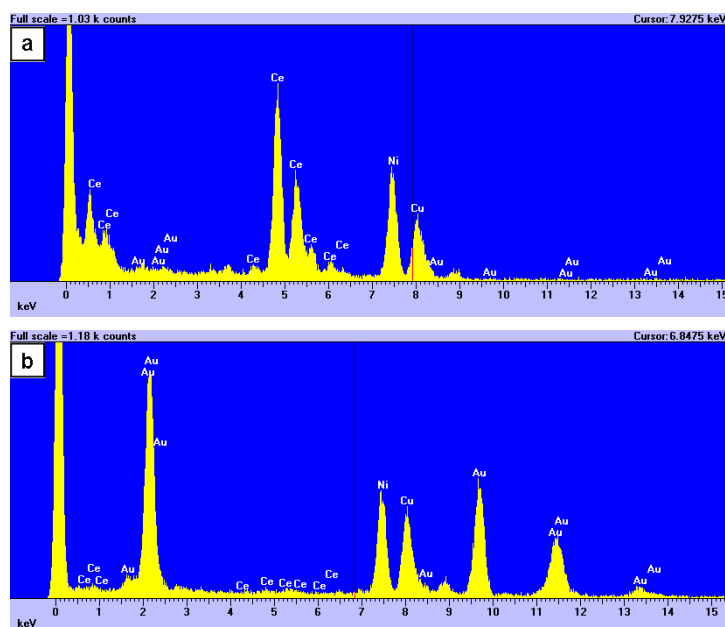


Fig. S3 EDX analysis of a) the bulk CeO_2 matrix and b) a darker Au nanoparticle.

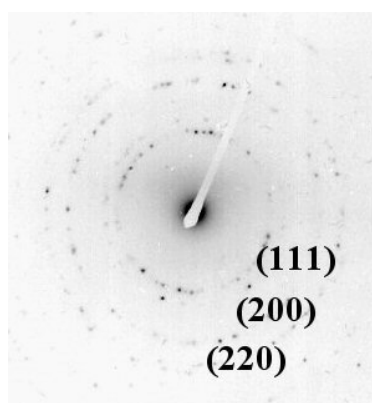


Fig. S4 SAED showing rings at spacings characteristic of cubic CeO_2 .

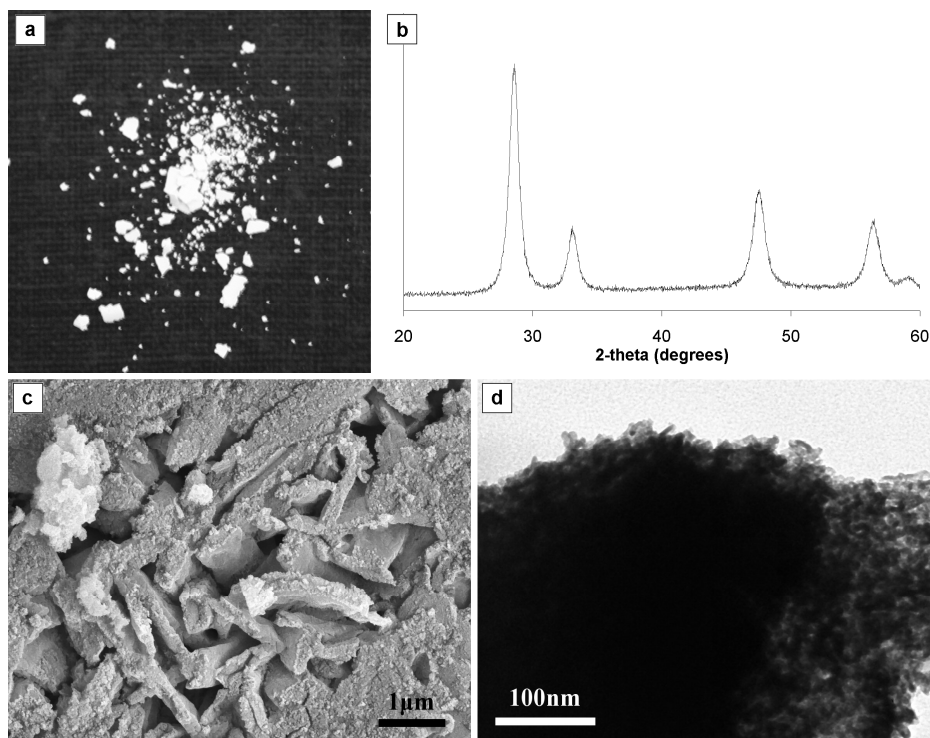


Fig. S5 a) An image of the control CeO₂ sample, synthesized in the absence of alginate, as well as b) pXRD showing peaks for CeO₂, c) SEM and d) TEM.