Supporting Information

Gold Nanoparticles as Monoanion Sensors through Modified Electrophilicity

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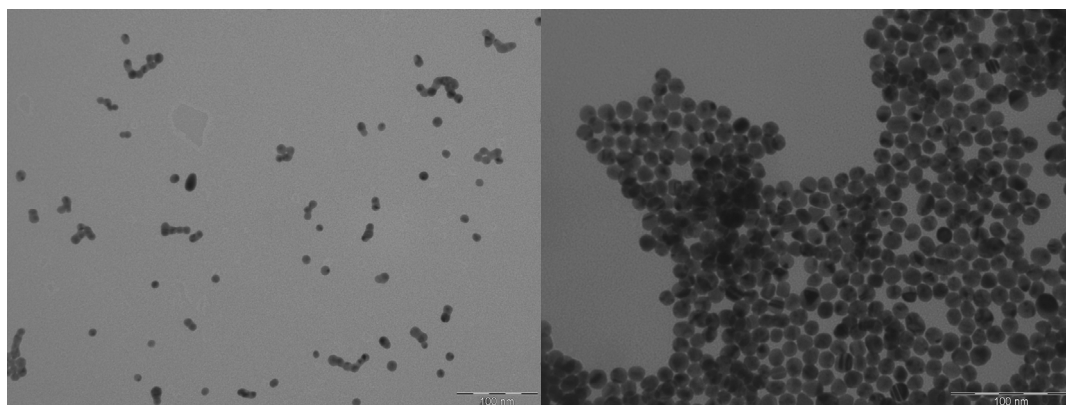
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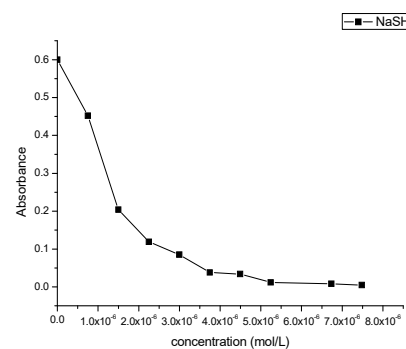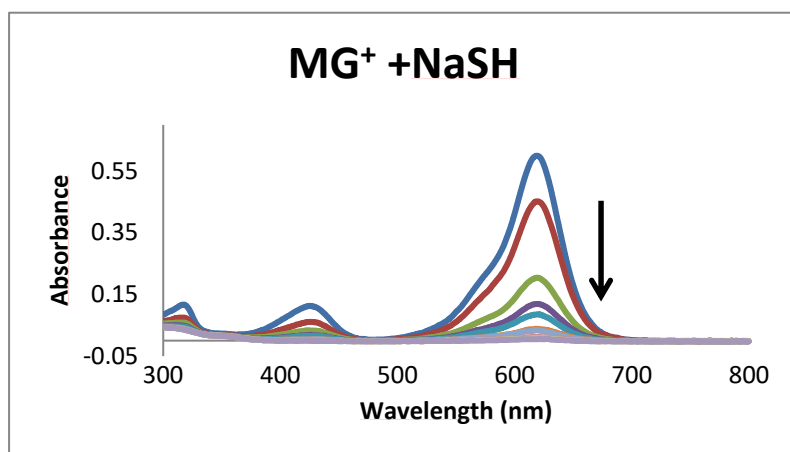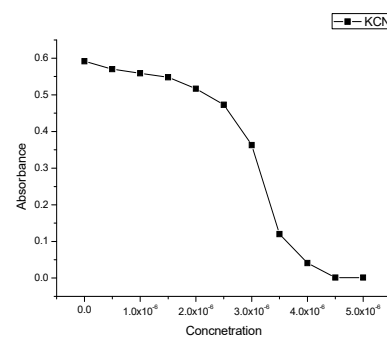*   Correspondence: almudena.marti-morant@univ-lorraine.fr (A.M.); jose.a.saez@uv.es (J.A.S.)
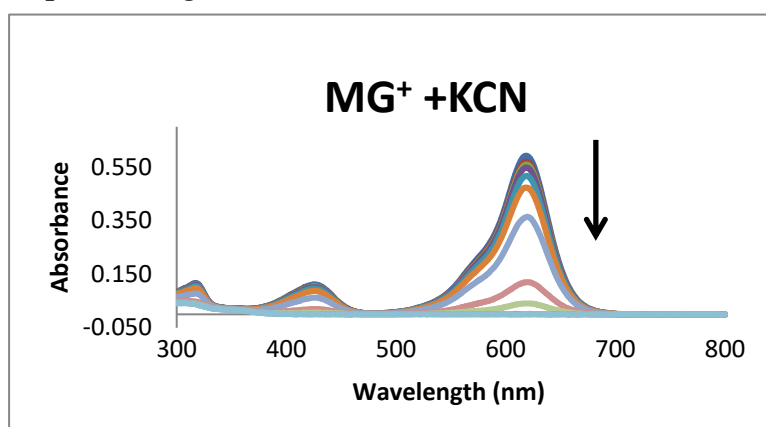
Contents:

S1 TEM images of NP1 and aggregated NP1 after some anions addition

S2 UV-vis spectra of the MG+ on addition of increasing amounts of KCN and NaSH expressed mg/m³. Plot at 619 nm vs. KCN and NaSH concentration respectively.

S3 UV-vis spectra of the NP1 on addition of increasing amounts of anions expressed mg/m³. Plots A620/A530 vs. anion concentration, respectively.
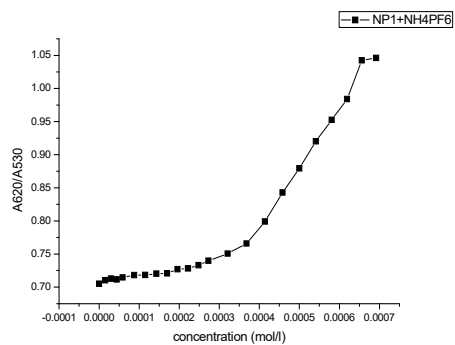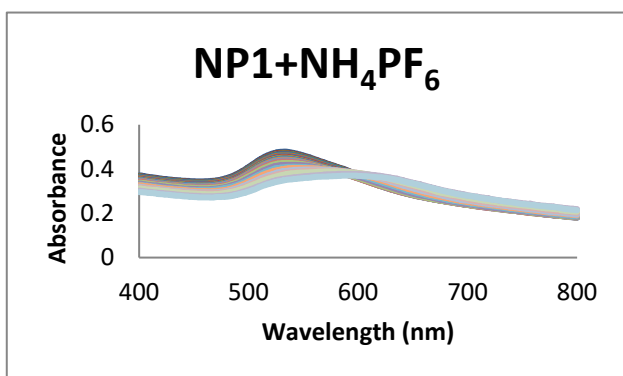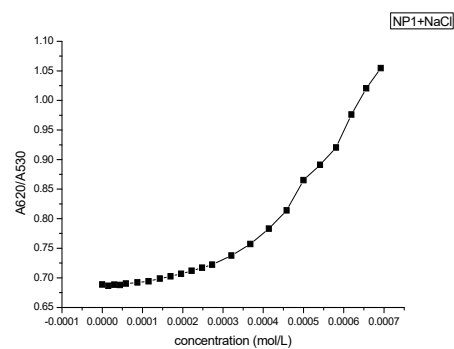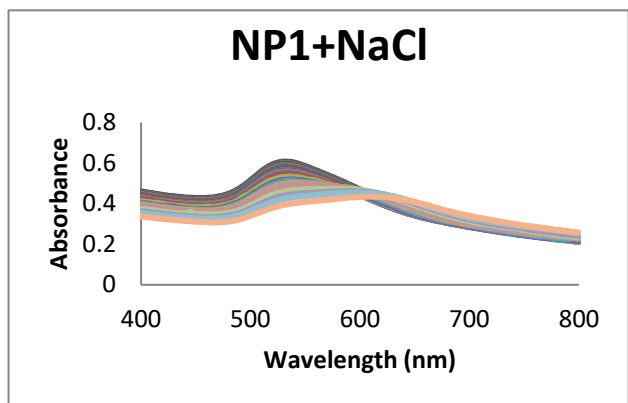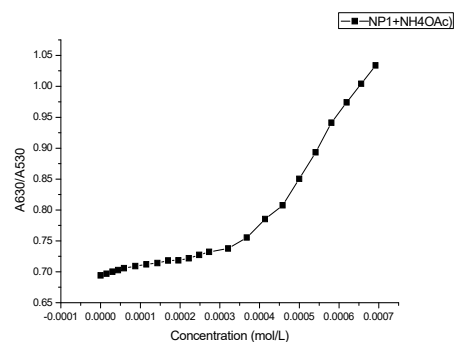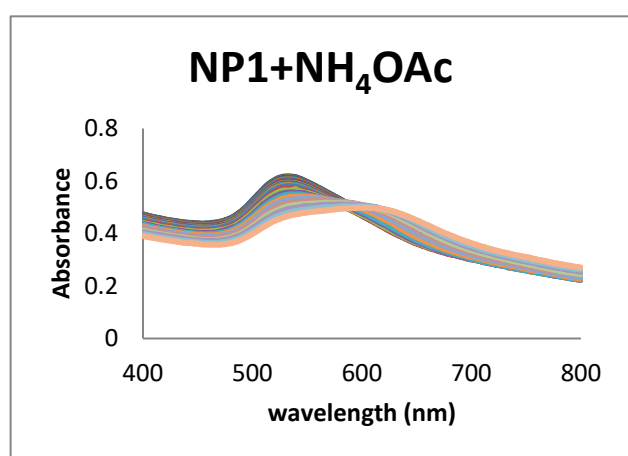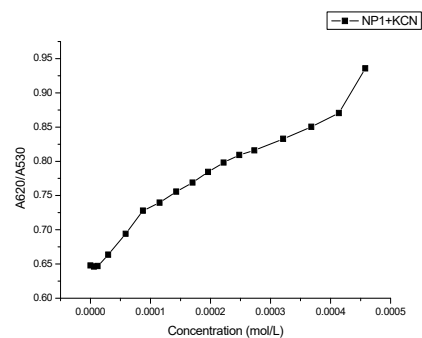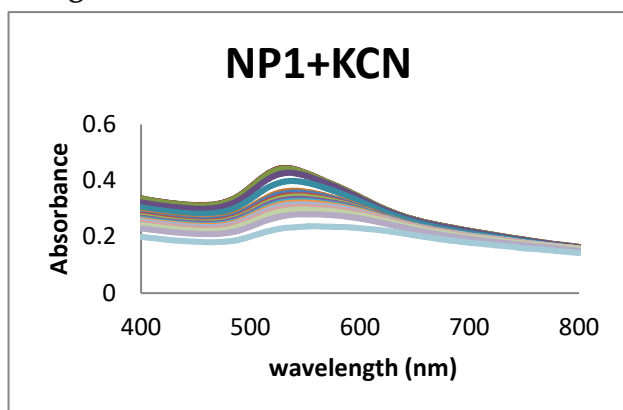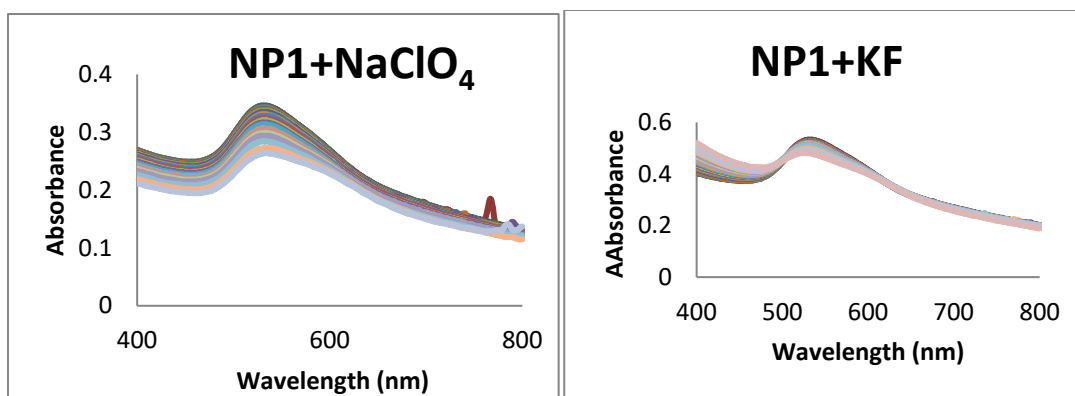
S4 Determination of the Limits of Detection (LODs)

The limits of detection (LODs) were calculated from the plots of the ratio of the intensity of the absorbance at ca. 620 nm and ca. 530 (A_{620}/A_{530}) versus anion concentration expressed in ppm (mg/L). We arbitrarily define the LOD as the anion concentration at which a 10 % increase in the absorbance intensity ratio (A_{620}/A_{530}), can be measured [1].

LOD was calculated by using the equation (1), where K=3; S_b is the standard deviation of the blank and m is the slope of the calibration curve.

$$LOD = K \cdot \frac{S_b}{m} \quad (1)$$

The A_{620}/A_{530} value of the blank solution (y_b), the LOD and the standard deviations were obtained from the slope of the calibration curves in the linear range.

	CN^-	AcO^-	F^-	Cl^-	ClO_4^-	PF_6^-
Y	0.764	0.71647		0.70284		0.725
Sd	0.0856	0.01665		0.01568		0.1648
Y+3·Sd	1.0208	0.76642		0.74989		0.7745
LOD (mol/L)	$3.099 \cdot 10^{-3}$	$5.08 \cdot 10^{-4}$	---	$4.547 \cdot 10^{-4}$	---	$5.22 \cdot 10^{-4}$

REFERENCES

1. Liu, B.; Wang, H.; Wang, T.; Bao, Y.; Du, F.; Tian, J.; Li, Q.; Bai, R. A new ratiometric ESIPT sensor for detection of palladium species in aqueous solution Chem. Commun. 2012, 48, 2867-2869. https://doi.org/10.1039/C2CC17677G. B