Electronic Supplementary Material (ESI) for Nanoscale.

ELECTRONIC SUPPLEMENTARY INFORMATION

In Vivo Formation of Protein Corona on Gold Nanoparticles. The effect of Size and Shape

Rafaela García-Álvarez[a,b], Marilena Hadjidemetriou[a], Ana Sánchez-Iglesias[b], Luis M Liz-Marzán[b,c,d*] and Kostas Kostarelos[a*]

[a] Nanomedicine Lab, Faculty of Biology, Medical & Health, The University of Manchester, Manchester M13 9PT, United Kingdom
[b] Bionanoplasmonics Laboratory, CIC biomaGUNE, Paseo de Miramón182, 20014 Donostia-San Sebastián, Spain.
[c] Ikerbasque, Basque Foundation for Science, 48013 Bilbao, Spain.
[d] Ciber de Bioingeniería, Biomateriales y Nanomedicina, Ciber-BBN, 20014 Donostia-San Sebastián, Spain.

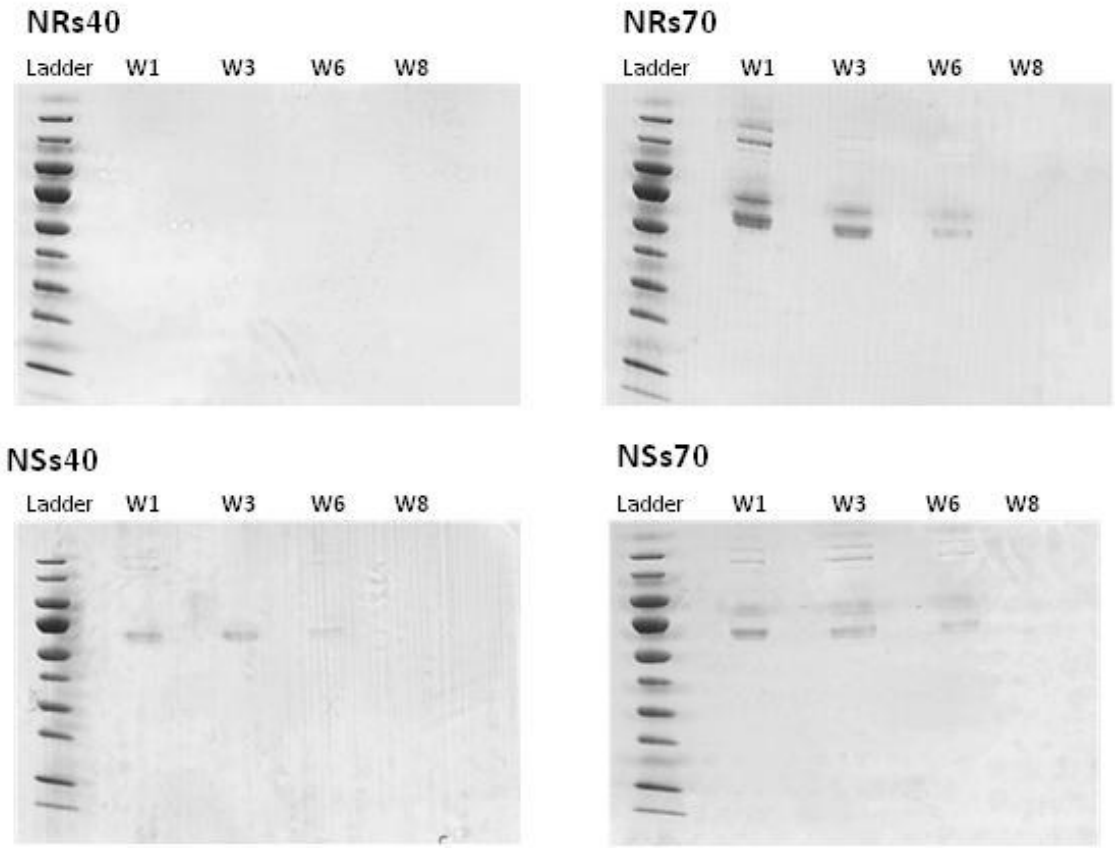

Fig. S1 Second purification step: Large unbound proteins present in chromatographic fractions 4,5,6 as well as loosely bound proteins were separated from AuNPs by membrane ultrafiltration (Viva Spin Column-1000000 MWCO). Imperial Protein stained SDS-PAGE shows that any remaining proteins in chromatographic fractions 4,5 and 6 were removed to the filtrate of Viva Spin (Washing steps 1 to 8) and no free proteins were detected at the last washing step.

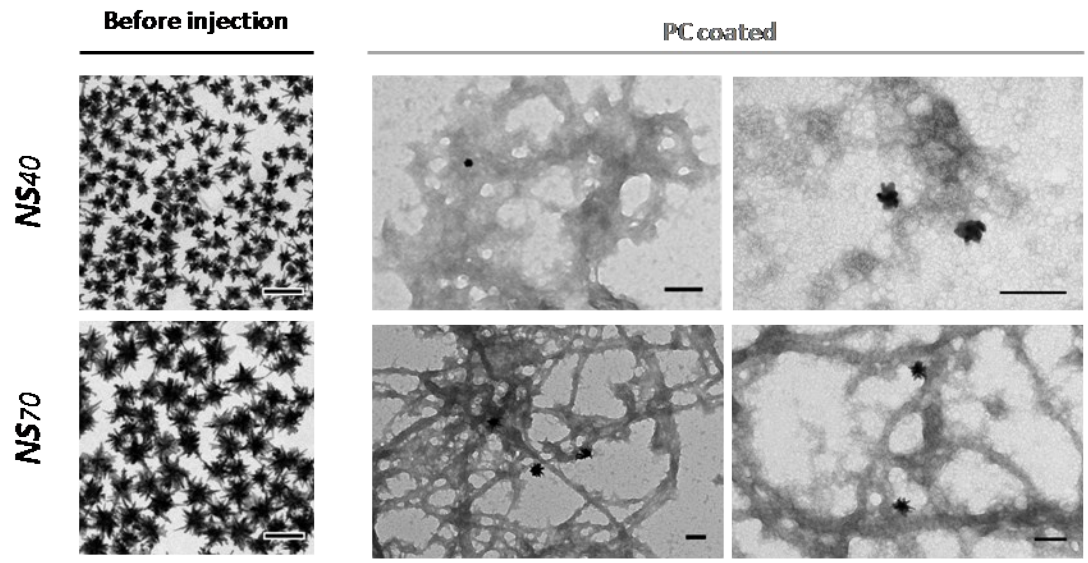

Fig. S2 TEM images showing that AuNSs of 40nm partially reshape after *in vivo* incubation, whereas AuNSs 70nm retain sharp tips.

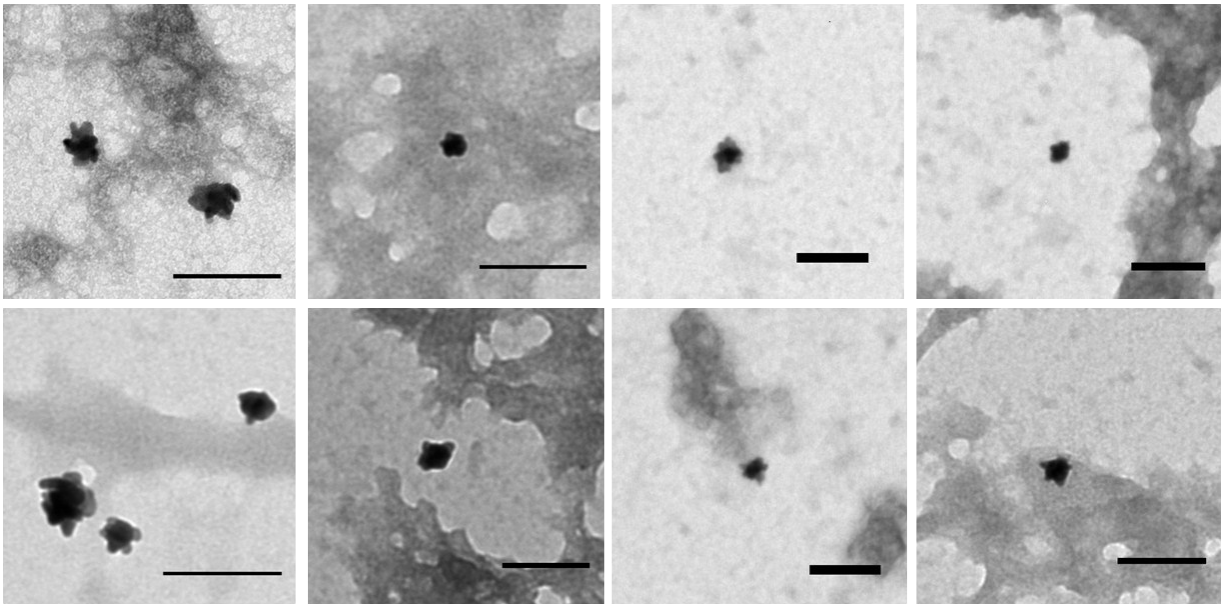

Fig. S3 TEM images showing reshaping of 40nm AuNSs after *in vivo* incubation (n=11). Scale bars are 100 nm.

Table S1 Effect of *in vivo* protein corona formation on the physico-chemical properties of AuNPs before and after interaction with proteins: Mean diameter (nm), ζ-potential (mV) and PDI.

	NRs_{40}		NSs_{40}		NRs_{70}		NSs_{70}	
	Bare	PC	Bare	PC	Bare	PC	Bare	PC
H_D (nm)	21.25±0.03	83.28±7.50	82.09±2.70	79.98±0.70	24.91±0.34	75.67±6.24	122.00±1.31	93.36±4.84
ζ-potential (mV)	-28.57±0.55	-36.76±2.05	-29.33±0.23	-31.78±2.89	-28.77±0.38	-20.32±0.95	-33.63±0.21	-18.88±0.44
PDI	0.786±0.002	0.315±0.088	0.245±0.008	0.232±0.080	0.378±0.003	0.388±0.110	0.101±0.007	0.388±0.017

Table S2 Amount of gold per sample (µg Au/L) obtained by ICP-MS for *in vivo* PC-AuNPs.

	ICP-MS
	ug Au/L
Rods 40 a	22.02
Rods 40 b	22.15
Rods 40 c	20.02
Stars 40 a	25.48
Stars 40 b	33.69
Stars 40 c	37.93
Rosd 70 a	28.09
Rods 70 b	33.72
Rods 70 c	28.32
Stars 70 a	27.57
Stars 70 b	25.70
Stars 70 c	27.32