

SUPPORTING INFORMATION

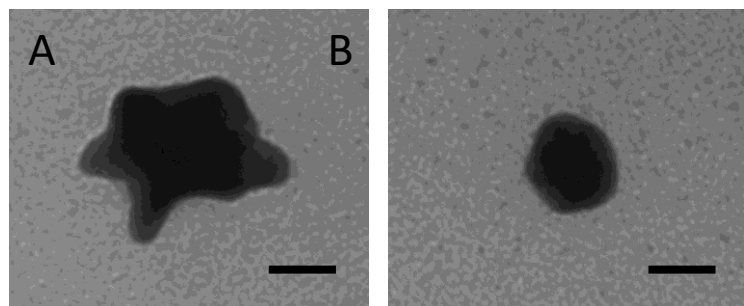


Figure S1. TEM micrographs of A) branched and B) spherical gold nanoparticles. Scale bars represent 20 nm.

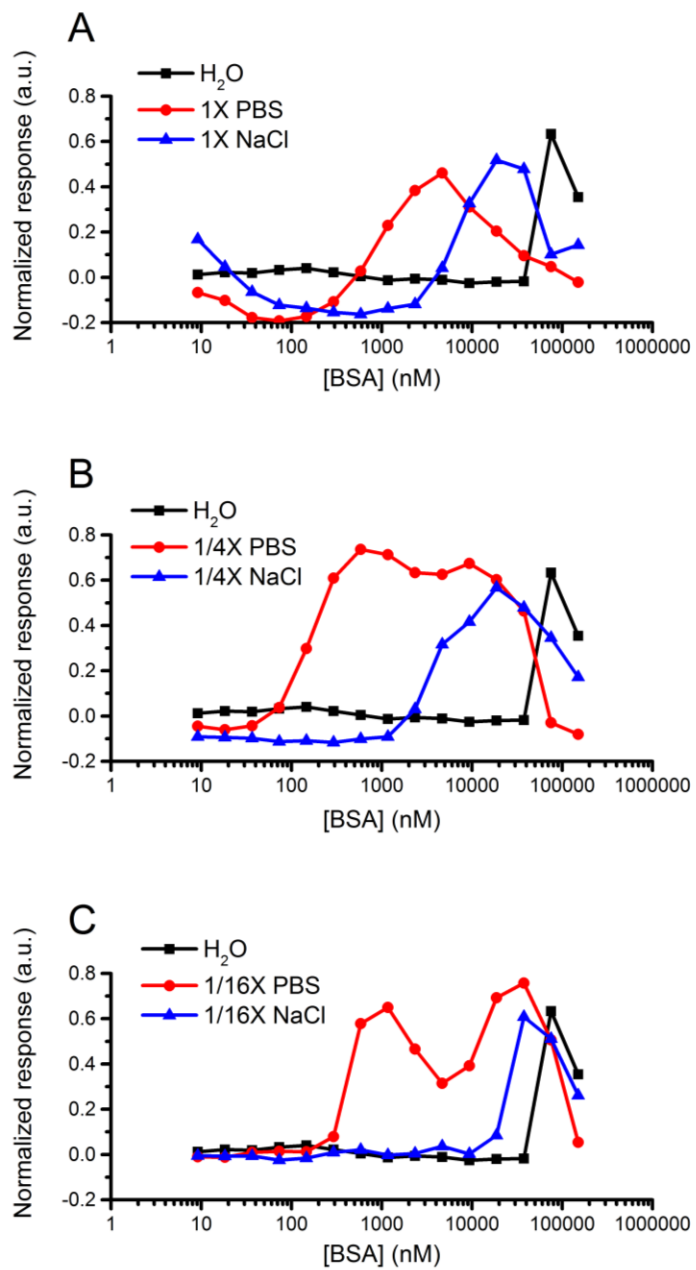


Figure S2. Concentration-dependent aggregation of “chemical nose” nanostars to BSA solutions of different ionic strength and composition.

Table S1. Detection ranges for six proteins in 1/4X PBS using CTAB-stabilized “chemical nose” gold nanoparticles and comparative physiological concentrations in human samples.

Protein	Limit of Detection		Human physiological range*
	Lower	Upper	
BSA	52 nM	284 nM	n.a.
HSA	127 nM	272 nM	540-722 $\mu\text{M}$ (serum) <sup>1</sup>
IgG	0.5 nM	16 nM	44-93 $\mu\text{M}$ (serum) <sup>2</sup>
Lyz	n.d.	n.d.	0.1-9.1 $\mu\text{M}$ (saliva) <sup>3</sup>
Fib	0.3 nM	2 nM	6-12 $\mu\text{M}$ (plasma) <sup>4</sup>
Hgb	> 10 $\mu\text{M}$	> 10 $\mu\text{M}$	2.2-2.6 mM (whole blood) <sup>5</sup>

\* In cases where physiological concentrations given by age and/or sex, information presented is based on adult males.

n.a. : not applicable

n.d. : not detected

Table S2. Physical and optical parameters of proteins used for concentration determination.

(Adapted from Moyano et al.<sup>6</sup>)

Protein	Mw	E <sub>280</sub> (10 <sup>3</sup> /M <sup>-1</sup> cm <sup>-1</sup> )	A <sub>280</sub> (4.5 $\mu\text{M}$ )	Reference
BSA	66.4	44.3	0.199	Sigma-Aldrich
HSA	66.5	35.3	0.159	Sigma-Aldrich
IgG	150	210	0.945	<sup>6</sup>
Fib	340	513	2.310	Sigma-Aldrich
Lyz	14.3	37.8	0.170	<sup>6</sup>
Hgb	64.5	130	0.585	Sigma-Aldrich

References:

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