

Effect of Selenium Nanoparticle Size on IL-6 Detection Sensitivity in a Lateral Flow Device

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Presented within this supporting information document are the following sections:

[1] Supplementary Figures S1 – S6

[2] Supplementary Table S1

1. Supplementary Figures

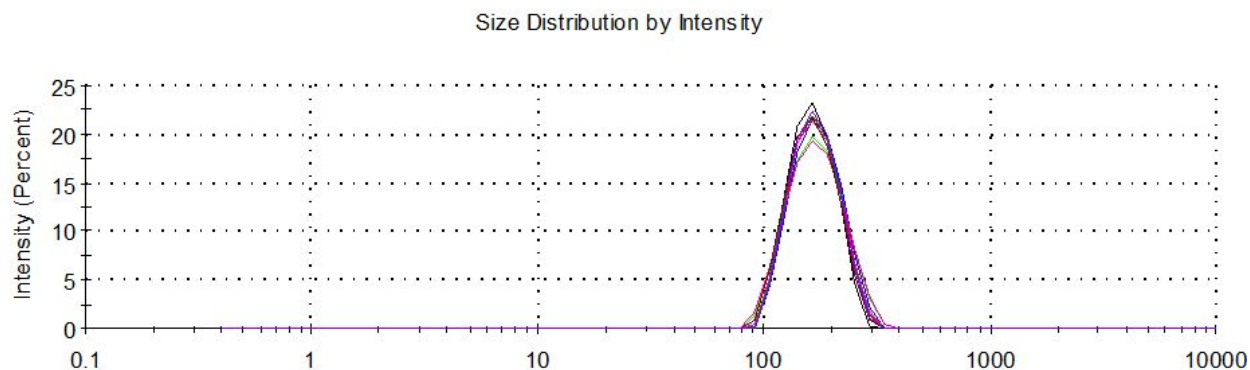


Figure S1: Size distribution plot of the nine recorded DLS measurements performed on the 150 nm SeNPs. The average diameter from the above size distribution plot is presented in Table 1 in the main document.

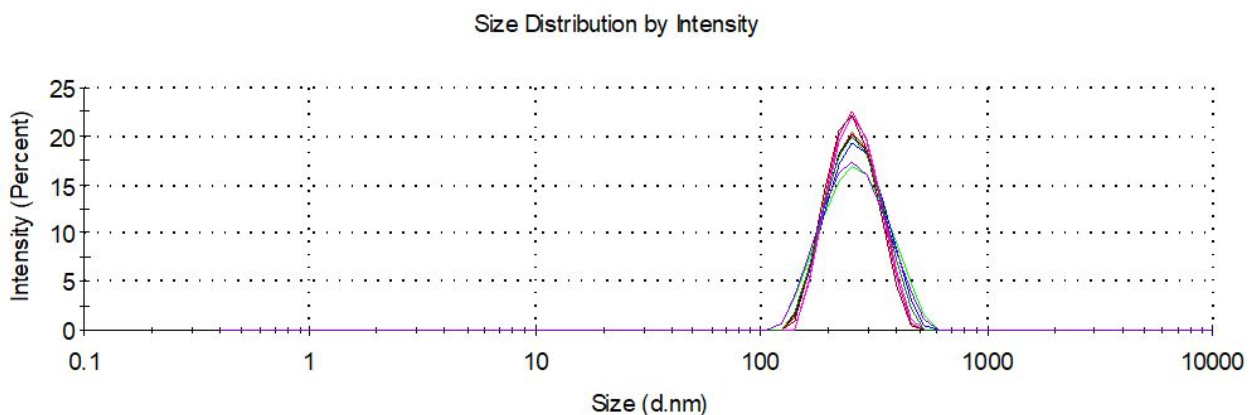


Figure S2: Size distribution plot of the nine recorded DLS measurements performed on the 200 nm SeNPs. The average diameter from the above size distribution plot is presented in Table 1 in the main document.

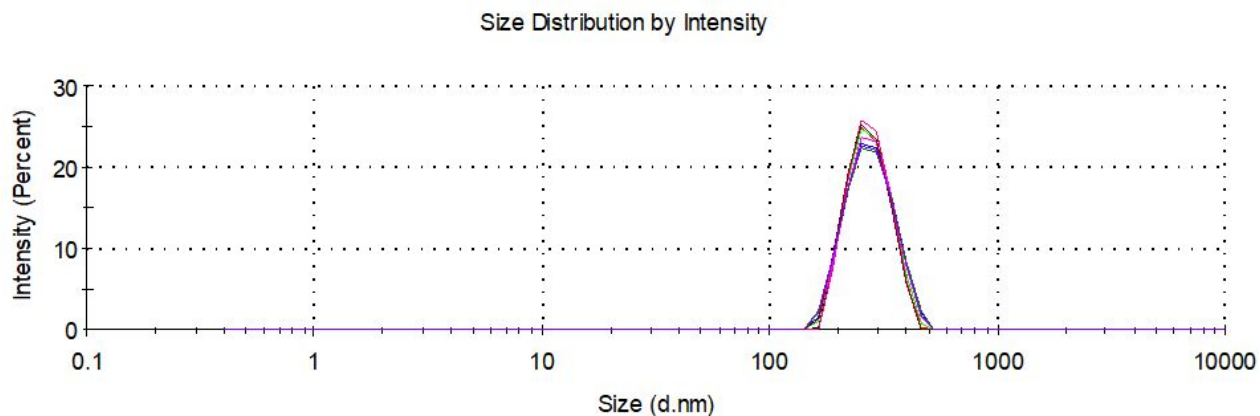


Figure S3: Size distribution plot of the nine recorded DLS measurements performed on the 250 nm SeNPs. The average diameter from the above size distribution plot is presented in Table 1 in the main document.

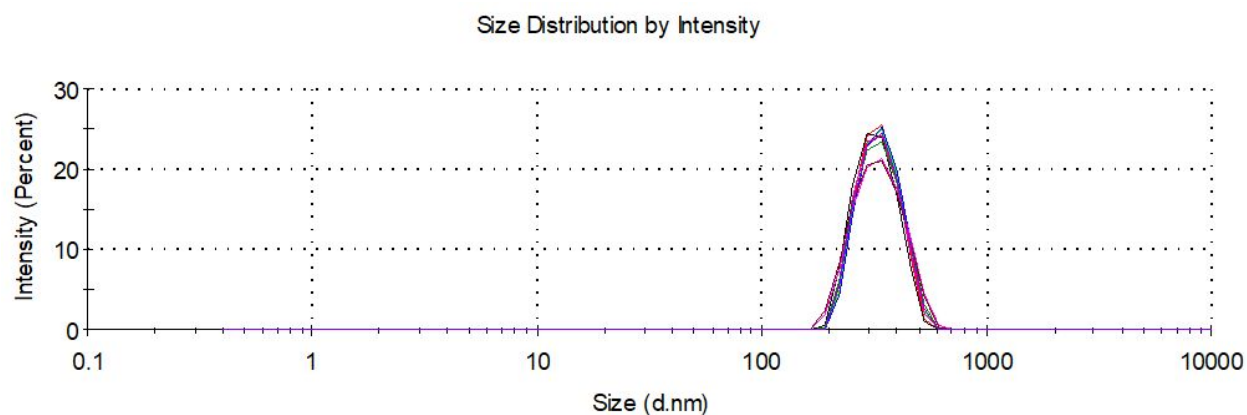


Figure S4: Size distribution plot of the nine recorded DLS measurements performed on the 310 nm SeNPs. The average diameter from the above size distribution plot is presented in Table 1 in the main document.

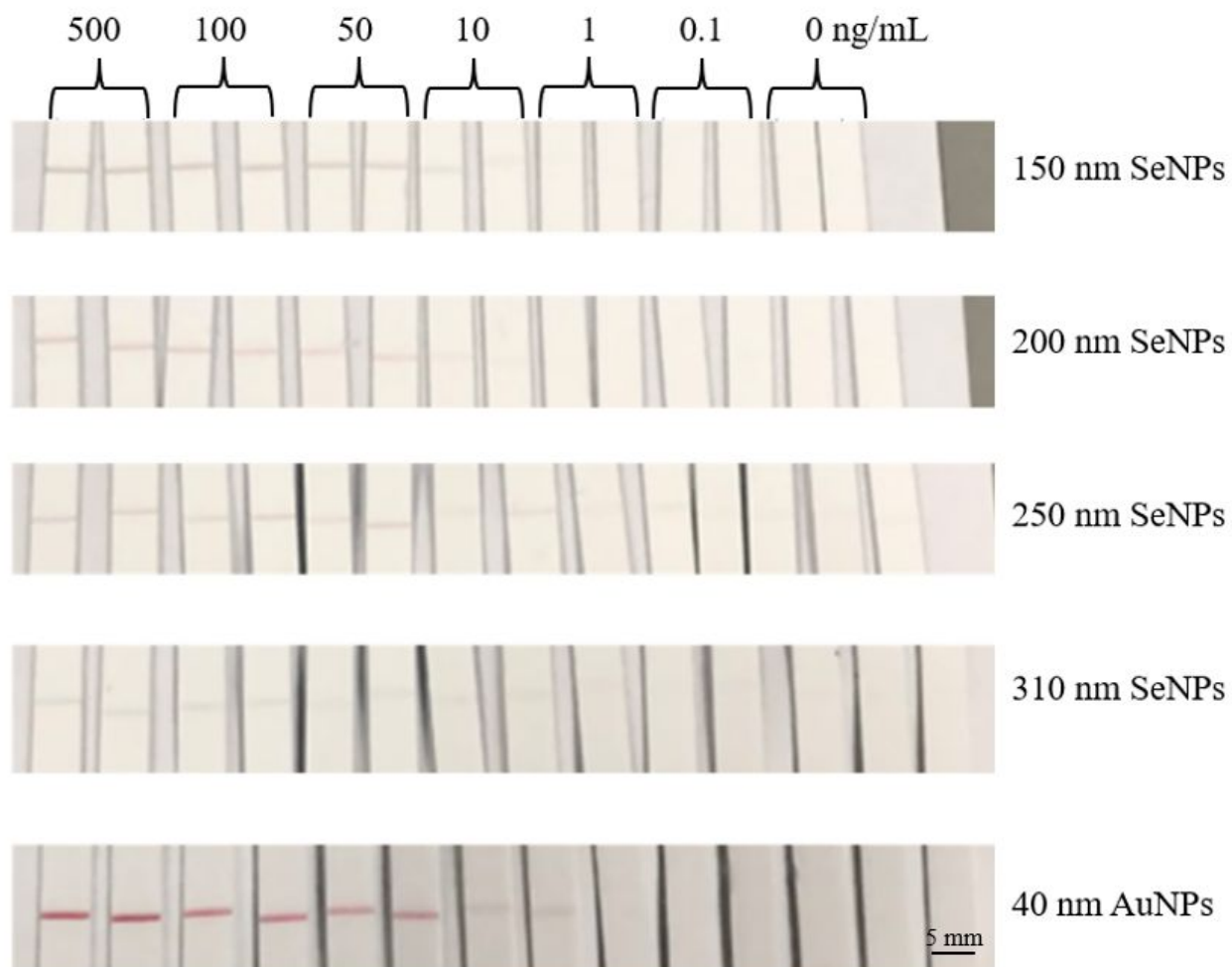


Figure S5: Direct images of the SeNPs and AuNPs-based LFDs used in the investigation of IL-6 sensitivity. **(Left to right)** LFDs were subjected to successively lower concentrations of IL-6. **(Top to bottom)** LFDs which employed successively larger SeNPs, and finally AuNPs. All LFDs were analyzed in duplicate to ensure reproducibility.

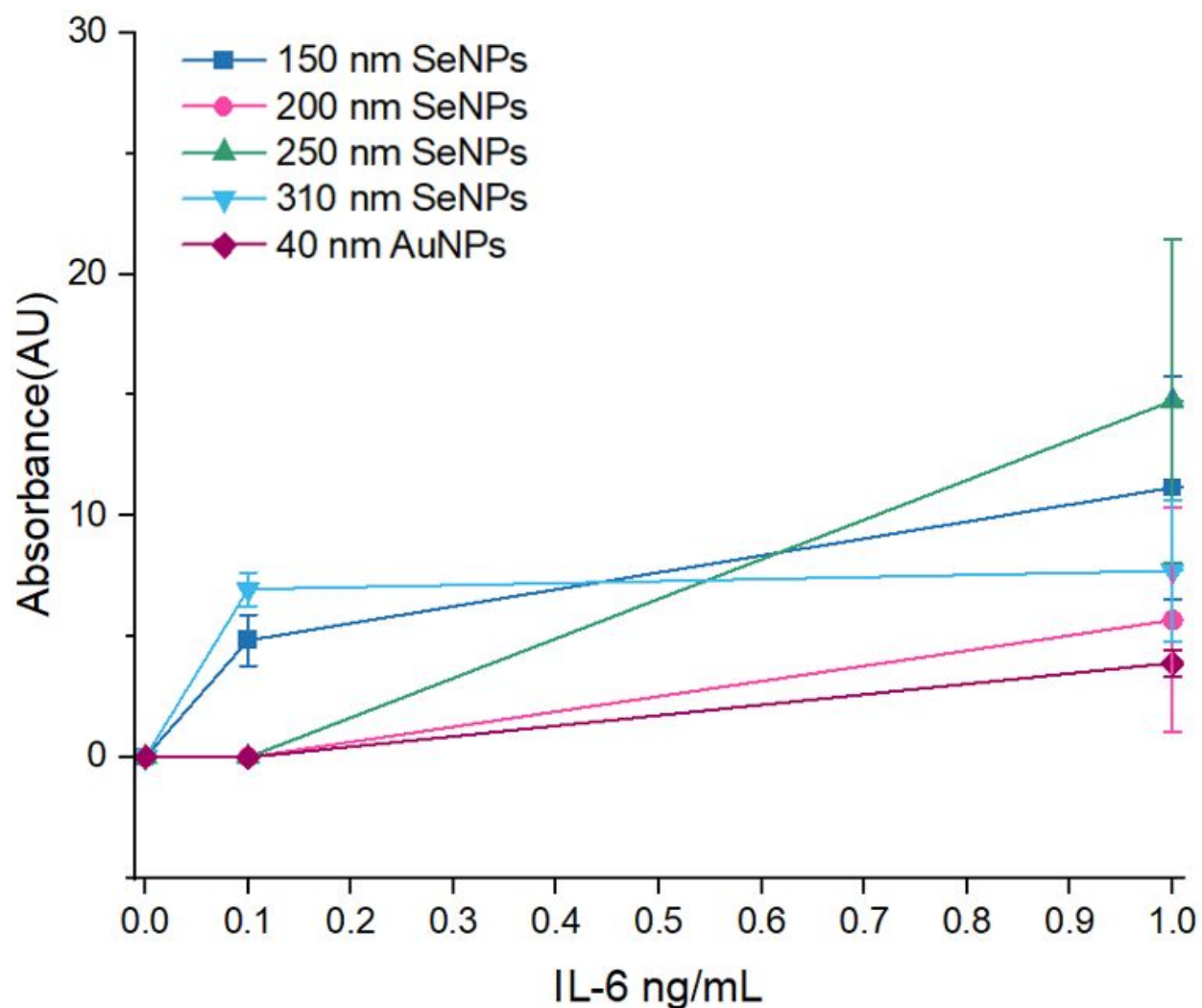


Figure S6: Absorbance vs IL-6 concentration plot for each SeNPs and AuNPs-based LFD. The above plot illustrates the LOD of each label. Specifically, 0.1 ng/ml for the 150 nm and 310 nm sized SeNPs labels, and 1 ng/ml for the 200 nm and 250 nm sized SeNPs labels as well as the 40 nm AuNPs label.

2. Supplementary Table

Table S1: Sensitivity values run in duplicate for the 150 nm, 200 nm, 250 nm, 310 nm SeNPs and 40 nm AuNPs-based LFDs in the detection of IL-6. Values were recorded using Image J analysis software.

IL-6 (ng/mL)	150 nm SeNPs		200 nm SeNPs		250 nm SeNPs		310 nm SeNPs		40 nm AuNPs	
500	122	121	102	98	47	58	43	42	166	146
100	110	104	68	76	36	42	27	32	128	123
50	88	79	48	56	23	37	19	23	104	93
10	41	27	25	11	16	17	12	10	32	19
1	14	8	9	2	10	20	10	6	4	4
0.1	6	4	0	0	0	0	7	6	0	0
0	0	0	0	0	0	0	0	0	0	0

