Electronic Supplementary Information (ESI)

S-1

Submicron-precision particle characterization in microfluidic impedance cytometry with double differential electrodes

Jianwei Zhong, Minhui Liang and Ye Ai[*]

Pillar of Engineering Product Development, Singapore University of Technology and Design, 8 Somapah Road, Singapore 487372, Singapore

*Corresponding author. Email: aiye@sutd.edu.sg; Tel: (+65) 6499 4553
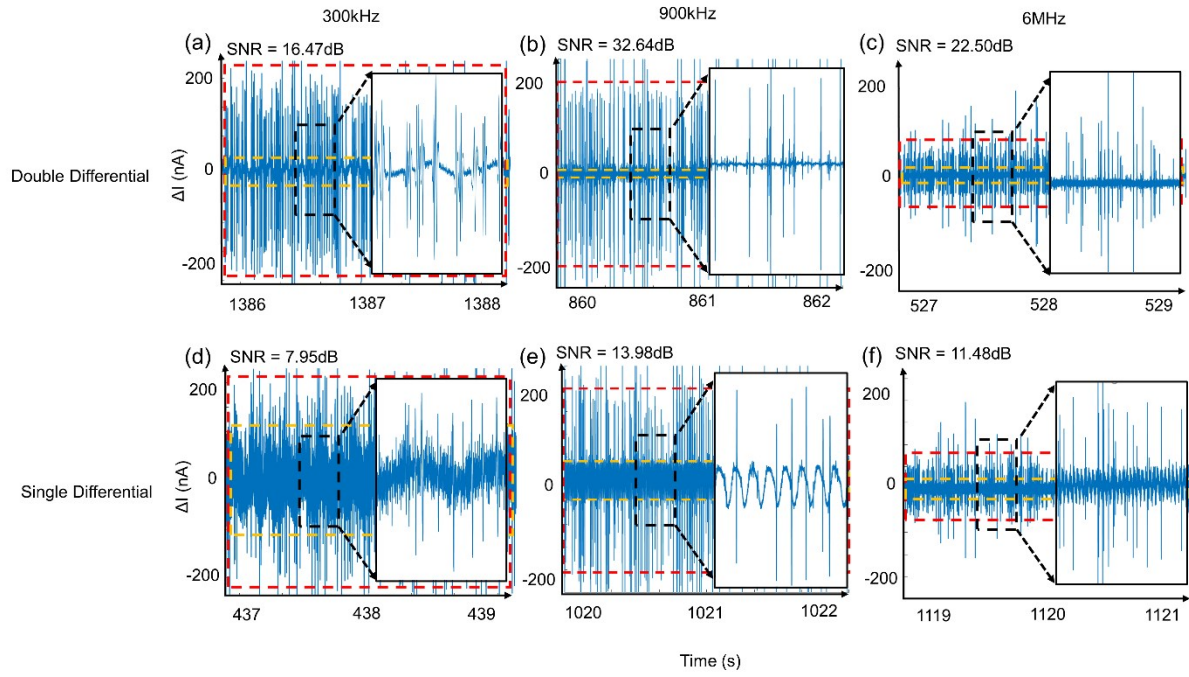
Table of Contents

Fig. S1. Raw impedance signal segments of: (a) double differential at 300 kHz, (b) double differential at 900 kHz, (c) double differential at 6 MHz, (d) single differential at 300 kHz, (e) single differential at 900 kHz, (f) single differential at 6 MHz, labelled with SNR.
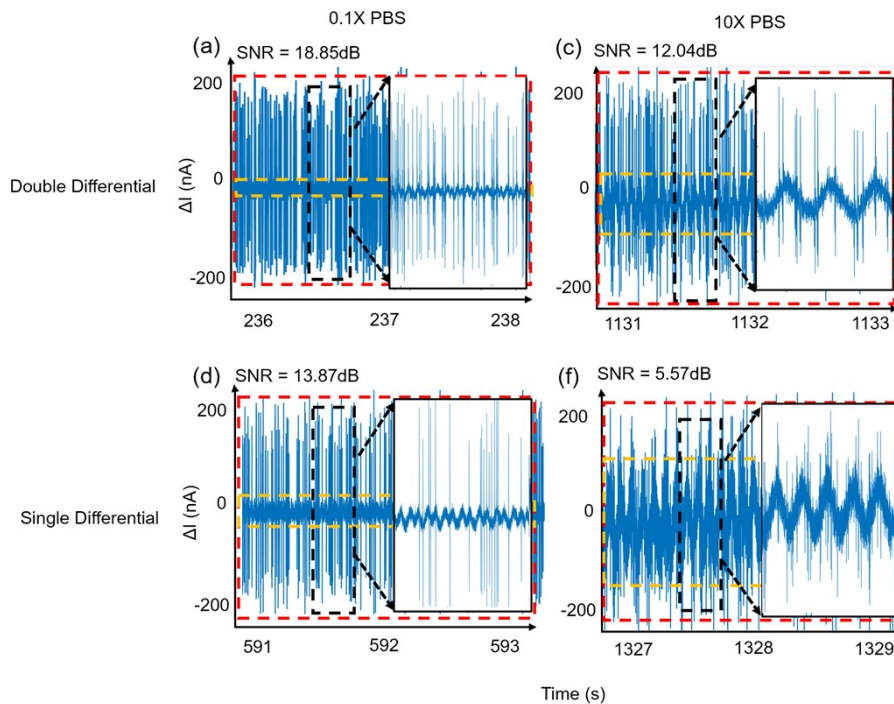
Fig. S2. Raw impedance signal segments of: (a) double differential in 0.1X PBS, (b) single differential in 0.1X PBS, (c) double differential at 10X PBS, (d) single differential in 10X PBS, labelled with SNR.
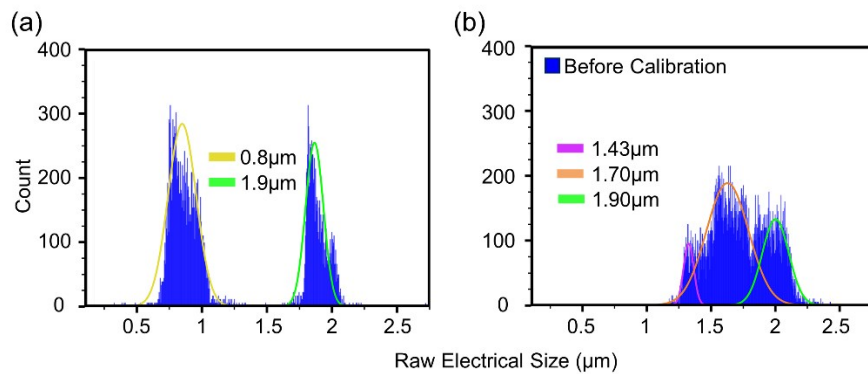

Fig. S3. Gaussian fitting of the raw electrical size of the mixture samples: (a) 0.83, 1.9 μm; (b) 1.43, 1.7, 1.9 μm.
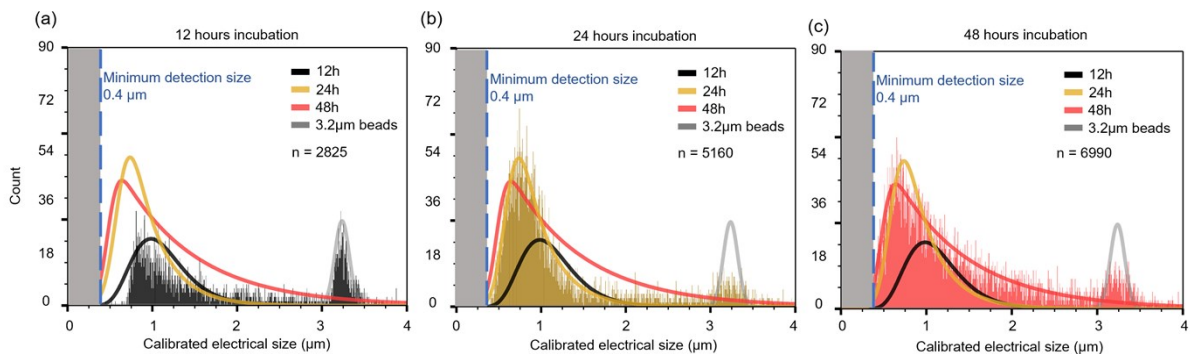

Fig. S4. Gaussian fitting of the calibrated electrical size of the apoptotic bodies-enriched sample incubated in (a) 12, (b) 24 and (c) 48 hours. Note the electrical size is calibrated by the position factor and 3.2 μm beads.

Table S1. Gaussian fitting results for Fig. 6 (e) and (f), and Fig. S2.

Bead Size	Before Calibration				After Calibration			
	Mean	Std	Overlapping Coefficient		Mean	Std	Overlapping Coefficient	
0.8um	0.88147	0.141218	N.A.		0.844	0.102371	N.A.	
1.43um	1.22	0.059195	69.368%		1.419	0.084304	2.872%	
1.7um	1.523	0.244992	6.030%	11.503%	1.694	0.079935	1.532%	0.227%
1.9um	1.9	0.153233	26.119%		1.9	0.07549	0.281%	